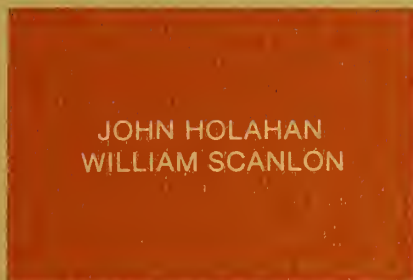


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Price Controls, Physician Fees, and Physician Incomes from Medicare and Medicaid

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I. INTRODUCTION

A. Background

This paper provides evidence on (1) the effect of the controls on physician fees imposed during the Economic Stabilization Program and (2) the combined effect of several important policies affecting physicians participating in the California Medicaid program. The analysis is based on a large number of Medicare and Medicaid service claims from over 3,600 physicians in California from 1972 to 1975. Changes in procedure composition and in the number of services, as well as the effect of controls on charges and allowed fees, are analyzed. The data base permits disaggregation for separate examination of different specialties, different types of procedures, and different programs.

During the five years prior to the initiation of controls, physician fees increased at average annual rates of over 7 percent. Changes in the price of each procedure used in the medical care component of the consumer price index are shown in table 1. While the rates of increase varied, all fees rose significantly.

The Economic Stabilization Program (ESP) was introduced in August 1971 because of the national concern with inflation rates in the entire economy. The program placed price controls on physicians' services with a stated objective of limiting the rate of increase in all prices to 2.5 percent per year. Because of the complexity of both the ESP regulations and the usual and customary charge reimbursement system used by Medicare and Medicaid (described in the next section), the actual procedures for implementation of controls were rather involved. For the purposes of this introductory section, it should be

TABLE 1

Physician Fee Component of the Consumer Price Index, 1967-1971

(1967 = 1.000)

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Consumer Price Index	1.000	1.042	1.098	1.163	1.213
Physician Fees	1.000	1.056	1.129	1.214	1.298
General Physician, Office Visits	1.000	1.058	1.133	1.226	1.314
General Physician, House Visits	1.000	1.065	1.145	1.224	1.310
Herniorraphy (Adult)	1.000	1.046	1.088	1.150	1.234
Tonsillectomy & Adenoidectomy	1.000	1.049	1.103	1.171	1.252
Obstetrical Cases	1.000	1.052	1.135	1.218	1.290
Pediatric Care, Office Visits	1.000	1.049	1.144	1.227	1.320
Psychiatrist, Office Visits	1.000	1.053	1.135	1.194	1.248

Source: U.S. Department of Labor, Bureau of Labor Statistics,
Handbook of Labor Statistics, 1973 (Washington, D.C.:
 U.S. Government Printing Office, 1973).

sufficient to note that ESP controls placed severe restraints on increases in physicians' fees in 1973 and 1974. In 1975, controls were removed and reimbursement rates were permitted to increase significantly.

This study examines four interrelated issues raised by the price control experience in Medicare. First, how did the operation of price controls affect the billing behavior of physicians (actual charges) and the course of actual prices paid (reasonable charges) during the price control period and after the controls were lifted? Second, did physicians evade the impact of controls by shifting the billing of individual patient contacts from lower- to higher-paying procedure categories? Third, what were physicians' supply responses to the controls on the rate at which their current dollar (and real) charges could increase? Did they respond by increasing volume to offset the effect on income of controlled prices, by reducing volume in response to a reduced rate of price increase, or by leaving volume essentially unaffected over the relatively short price control experience? Finally, what was the combined effect of changes

in reimbursement rates and changes in service volume on physicians' incomes? How did physicians' incomes change during control years in comparison to the year after? How did these income changes vary among specialties and among programs?

The ESP program had little or no impact on the fees paid by the California Medicaid program. Medicaid fees were effectively controlled prior to the Economic Stabilization Act because charge screens were based on calendar 1968 charge data, with the only adjustment in the period being a 2.5 percent increase in July 1972. The interpretation of the Medicaid experience is also complicated by the state's imposition of a requirement of prior authorization for many physicians' services and of cost sharing on physician visits. The state also introduced a centralized eligibility identification system in July 1971. Thus, changes in service intensity, in service volume, and ultimately, in incomes will reflect the impact of these controls, the continued freeze on Medicaid fees, and any effects that the general ESP controls had on physician practice patterns. While the Medicaid results are discussed at some length in the paper, there is little effort to disentangle the effects of the various policies.

The study addresses a similar set of questions about the behavior of physicians participating in Medicaid. First, how did physicians' average charges and reimbursement rates change in light of the continued freeze on fees throughout the period? For example, did average reimbursement rates change because physicians with low screens reduced participation in the program? Second, did physicians attempt to raise fees by changing definitions of procedures and billing for an increasingly complex mix of procedures? Third, what happened to the volume of services provided to Medicaid patients in response to the combined effects of eligibility and fee controls, prior

authorization, and cost sharing? How did changes in the delivery of services vary among specialties and among types of procedures? Fourth, what was the combined effect of all state Medicaid policies on physicians' revenues from the program? Again, how did changes in physicians' incomes vary among programs and specialties?

B. Organization of the Paper

The paper is organized around each component of the change in physician incomes: prices, service intensity, and number of services. The next section of this paper provides a brief description of the Medicare and Medicaid reimbursement systems and of the data base used in this study. The third section examines the data on changes in prices. Tables were constructed for each program with indices by type of procedure, specialty, and year. Price indices were constructed for both billed and reasonable charges. Three types of price indices were developed. The first uses 1972 service weights, which reflect price changes for a constant mix of services. The second employs current year weights, which measure the effect of changes in the composition of services as well as price increases. The third decomposes the current year price indices into prices per RVS unit and the number of RVS units per service. (RVS units refer to the unit values assigned procedures in the 1969 California Relative Value Schedule.) Prices per RVS unit provide a measure of price change for a "standardized" procedure, the RVS unit. The effect of dividing average prices by RVS units is to convert the prices of simple and complex procedures into comparable terms. The number of RVS units supplied for each procedure can then be viewed as a quantity proxy.

The attractiveness of this type of index over the usual fixed service weight index is that the latter fails to accurately reflect price movements

when the composition of services shifts radically through time and the price changes among individual services are not proportional. As well as overcoming the problem of composition changes, decomposing the price index with current year weights allows a pure price index and a measure of change in service intensity to be developed. The measure of service intensity is simply the increase in RVS units divided by the number of services. This permits an analysis of the use of the procedure coding system as a mechanism for increasing prices.

The fourth section discusses changes in the volume of services provided during the period. Tables are again arranged by type of procedure, specialty, and year for each program. The final section analyzes the impact of changes in gross revenues on physicians' incomes. Tables are presented again by procedure, specialty, and year for both programs and are constructed using reasonable charges as prices for all claims. Reasonable charges are clearly appropriate for the Medicaid nonaged and Medicare assigned categories. However, on non-assigned claims, physicians are permitted to collect amounts in excess of reasonable charges (see section II of this paper for a description of Medicare assignment procedures). Thus, prices paid to physicians by beneficiaries on nonassigned claims most likely average somewhere between billed and reasonable. Using reasonable charges thus provides a conservative estimate of income from nonassigned claims.

C. Summary of Findings

The paper's principal conclusion is that price controls failed to effectively control expenditures for physicians' services. Controls were effective in limiting increases in unit prices, but physicians thwarted any intent to limit expenditures by (1) changing to a more complex service mix and (2) increasing the number of services provided. The net result was that the gross

Medicare incomes of physicians in the sample increased more during the two years of price controls than in the year after.

In the first year of controls, gross revenues of general practitioners, general surgeons, and internists increased by 11.9 percent, 10.1 percent, and 12 percent respectively. In the second year of controls, gross revenues increased by 12.4 percent, 15.6 percent, and 19.3 percent respectively. Most of the growth in revenues in these two years is explained by increases in the number of services. Medicare enrollment increased by 2.5 percent in both 1973 and 1974. Thus, increases in the number of patients contributed little to the growth in services. During the first year after controls, Medicare incomes grew by 3.6 percent for general practitioners, 9.1 percent for general surgeons, and 12.3 percent for internists. Increases in reasonable charge screens after removal of controls were responsible for the change in incomes from Medicare that year. The number of services provided fell by almost 8 percent for general practitioners and rose by only 1.3 percent for general surgeons and 2.5 percent for internists, despite a 2.6 percent increase in Medicare enrollment.

The above results represent only the effect of the ESP controls on prices and services provided to Medicare beneficiaries. No information is available on changes in services provided to the private market or on changes in total incomes. It is very unlikely that physicians' incomes from privately insured or uninsured patients increased at rates comparable to those observed in this study. It is quite plausible that physicians increased service provision, i.e., induced demand, most where patients faced low or no out-of-pocket costs. Because Medicare patients have more comprehensive coverage of ambulatory services than the general population, the extent of induced demand may be much greater in Medicare.

There are also significant problems in attributing all the year-to-year changes in services and revenues to behavioral responses to price controls. Several other potentially important factors occurred during this period. Wage rates increased with general inflation, and malpractice premiums began to escalate during these years. There were small but steady increases in the supply of physicians throughout the state. The rise in unemployment rates during 1974 and 1975 may have reduced private demand for services. If, under normal economic conditions, some Medicare patients (seeking care on an assigned claim basis) faced difficulties in gaining access to private physicians, a shift in private demand may have increased the willingness of physicians to accept Medicare patients. To rigorously measure the impact of price controls on the system during this period, it is necessary to use a formal model of physician price and output determination. Such an effort has been undertaken by Jack Hadley and Robert Lee of The Urban Institute and generally indicates that the price controls were the most important "shock" to the system.¹

The conclusions from the Medicaid experience are less clear-cut at this stage of the research. One conclusion is that the combined effect of eligibility controls, prior authorization, cost sharing, and the continued freeze on fees reduced service utilization and physicians' incomes from Medicaid from 1972 to 1973. The independent effects of each of the policies could not be separated in this paper. However, the 5.2 percent decline in eligibility would by itself seem to be responsible for a substantial share of the decrease in the number of services provided. Some effort to distinguish the results of each policy is being made in the econometric work now in progress.

Average fees or reimbursement rates of the physicians studied showed little or no increase for 1973 and 1974. In 1975, average reimbursement rates

increased considerably. Because fees were still under strict controls, average rates could only change if the composition of participating physicians changed. Thus, it is likely that fee controls coupled with other Medicaid policies resulted in reduced participation (within specialties) of physicians with low usual charge screens. In addition, Medicaid policies appear to have resulted in reduced participation by general practitioners and increased delivery of services by obstetrician-gynecologists (OB-GYNs) and pediatricians. There was a significant increase in revenues for general surgeons, OB-GYNs, and pediatricians in 1974. General surgeons and OB-GYNs exhibited strikingly large increases in visits and tests per surgical procedure. Incomes of all specialties increased in 1975, due to increases in average fees and to a general increase in the volume of services. The expansion of services in 1974 and 1975 may reflect a compensatory response to general price controls on Medicaid reimbursement. A 9 percent increase in Medicaid eligibility in 1975 also contributed to the growth in service utilization.

II. DESCRIPTION OF MEDICARE AND MEDICAID REIMBURSEMENT SYSTEMS AND DATA BASE

In this section, the more relevant characteristics of the reimbursement systems used by Medicare and Medicaid are described, and the data base used for the study is discussed.

A. Medicare Reimbursement

Medicare, under Part B, provides insurance coverage for physicians' services for all persons age 65 and older. Coverage must be purchased by the individual through the payment of a monthly premium, and enrollment is nearly universal. Once an individual is covered, Medicare pays 80 percent of the reasonable amount (defined below) for most physician services after a deductible of \$60 per calendar year has been satisfied. A few services, such as routine eye examinations and immunizations, are excluded from coverage, and certain limitations are placed on psychiatric care.

Physicians have two options for obtaining reimbursement for their services under Medicare Part B. First, they may assign the claim for their services, which involves submitting their bill directly to the Medicare carrier for their area. When a claim is assigned, a physician is reimbursed at 80 percent of the reasonable amount for the service involved if the patient's deductible has been satisfied. The reasonable amount is the lowest of (1) the amount the physician billed for this claim, (2) his median charge for this procedure in the calendar year preceding the current fiscal year, or (3) the 75th percentile of the median charges weighted by number of services of all the physicians in his geographic area in the same prior period. The physician's median charge is designated as his customary charge, while the 75th percentile of the median charges is referred to as the prevailing charge. When a claim is assigned, the physician agrees to accept the reasonable amount as full payment for his services. The physician

must bill the patient for his obligation, which is 20 percent of the reasonable amount if the deductible has been satisfied. Otherwise, any unpaid deductible amount is also billed. If an individual over 65 is eligible for Medicaid in California, the state Medicaid program buys the person into Medicare. In this case, the physician is mandated to bill on assignment and, instead of billing the patient for the deductible or the coinsurance, bills the Medicaid program.

The second option available to physicians is to bill on a nonassigned basis. In this case, the physician bills the patient directly and expects payment of the full amount of the bill in settlement. The patient secures reimbursement from Medicare by submitting a claim to the carrier, who will pay the patient 80 percent of the reasonable amount less any unpaid deductible.

For all Medicare claims, the service performed is defined in terms of the 1969 California Relative Value Study (CRVS) published by the California Medical Association. The Relative Value Study uniquely describes each procedure. It provides a five-digit numerical code which is used for billing and identification. Its organization divides procedures into five categories--medicine, anesthesiology, surgery, radiology, and pathology. It also includes "unit values to indicate the relativity within each individual section of median charges by physicians for these services."² That is, a particular surgical procedure with an RVS unit value of 2.0 has a median charge twice that of another surgical procedure with an RVS unit value of 1.0 for the sample of charges used in the study.

If a claim is made for a service where either the physician has no customary charge or the area has no prevailing charge, the RVS units are used to compute one. The computed customary equals the number of RVS units for the procedure times the physician's average charge per unit the prior year for

procedures in the same RVS category. The computed prevailing equals the number of RVS units for the procedure times the average charge per unit in the area the previous year for procedures in the same RVS category. If either the customary or the prevailing cannot be calculated because there are not enough prior year claims to compute an average charge per unit, the reasonable is computed on the basis of whatever information is available. Some procedures that are performed very infrequently or were developed after 1969 do not have established relative values in the 1969 study. These procedures are billed on a by-report basis where the physician describes the services involved and justifies his charge. Because such procedures are handled as individual cases, none have been included in this study.

The Economic Stabilization Program regulations affected Medicare reimbursement in the following way. First, prices paid in fiscal year 1972 were based on reasonable charge screens developed using calendar year 1970 data. These screens were already being utilized when the control program began. They remained in effect and, thus, real limits on physician fees (paid) did not take effect until July 1972. Fiscal year 1973 adjusted reasonable charge screens were calculated by permitting 40 percent of any increase in unadjusted reasonable charges between 1972 and 1973. Because the medical care consumer price index had increased by 6.2 percent between 1972 and 1973, it was assumed that 40 percent of the difference would yield average increases of 2.5 percent. California Blue Shield applied this formula to Medicare and their standard plans. The controls then reduced the rate at which the fees paid physicians could increase. Under the regulations, the increases in actual charges, which were to determine post-control reasonable charge screens, did not have to be as closely monitored by the carriers. Charges for individual services that represented an

increase in excess of this guideline were to be excluded from calculating the following year's profiles. Control over actual current year charges depended primarily on patient complaints to the price control authorities.

Adjusted reasonable charge screens for fiscal year 1974 were calculated by permitting 55 percent of the differences between fiscal 1973 reasonable charges and fiscal 1974 unadjusted reasonable charges. These were applied only to Medicare. Controls on charges for standard Blue Shield plans relied on patient complaints to the price control authorities. Because the ESP program ended in April 1974, fiscal 1975 reasonable charge screens were based on calendar 1973 actual charge data. There was no effort to restrict increases in reasonable charges. Since physicians limited their current year (1973) actual charges because of price controls, 1975 reasonable charge screens should have reflected the effect of the price controls. If physicians did not constrain actual charges during the control years, fiscal 1975 reasonable charges should have experienced a sharp upturn.

B. Medicaid Reimbursement

Medicaid provides total coverage of physicians' services for low-income persons eligible for the program. Basically, those eligible include all persons in families with dependent children, the blind, the disabled, and the aged, who have incomes below a state-mandated level, as well as some individuals (the medically needy) in these groups with higher incomes but extraordinarily high medical expenses. Persons covered by Medicaid because of their low incomes have no financial liability for services received. Medically needy individuals may have some liability depending upon their current income and medical expenses.

Unlike Medicare, which has a fundamentally uniform reimbursement system for physicians nationwide, the system employed by Medicaid is completely under state

control. In California, the Medicaid program has adopted a reimbursement system structurally similar to Medicare's. However, additional fee controls imposed by the state have resulted in a considerable divergence in the fees paid by the two programs.

For each claim submitted to Medicaid, the carrier pays the physician 100 percent of the reasonable amount. The reasonable is the lowest of (1) the billed amount, (2) the usual charge (Medicare's customary), or (3) the customary amount (Medicare's prevailing). While the usuals and customaries are computed identically to Medicare's customaries and prevailings, the charges used are from calendar year 1968 rather than the prior year. The only recent updating occurred in fiscal 1973, when both the usuals and the customaries for all procedures were increased by 2.5 percent. As a result, the amount paid for a Medicaid claim is generally well below that paid for a comparable Medicare claim. In addition, reimbursement rates for most physicians in practice in 1968 are constrained by their usual charge, which is lower than the area customary charge. Any new physicians and physicians performing procedures they did not perform in 1968 are limited only by the area customary charge. Thus, some have lower Medicaid fees than others. There are also likely to be differences among specialties in average usual charges, which may affect changes in participation over time.

For Medicaid eligibles over 65, the state buys the individual coverage under Medicare. Claims submitted on behalf of these persons are paid at the Medicare, not the Medicaid, rates. Thus, it is only for the nonaged portion of Medicaid that the reimbursement rates are considerably lower.

On October 1, 1971, California introduced a program limiting services received each month without prior authorization of a Medi-Cal consultant.

Consultants were state employees who reviewed claims in their area of medical competence. Individuals were permitted two visits to a provider and two prescriptions each month without prior authorization. The prior authorization requirements for outpatient visits to physicians were not removed until July 1, 1975; thus, they were in effect for the entire sample period. California also introduced a statewide copayment experiment on January 1, 1972, which required copayments on the two visits and prescriptions allowed each month without prior authorization. The copayments were required of all nonaged, medically needy persons. An average of 31.2 percent of the Medi-Cal eligibles were in the copayment group.³

C. Description of Claims Data

The physician sample used consisted of 3,634 nonteaching solo-practitioners in five specialties selected from a universe of 12,488 such specialists in California in 1975.⁴ The sample excluded physicians who had relocated between 1972 and 1975. A list of the specialties chosen, the number of doctors in the sample, and the universe for each specialty are shown in table 2.

TABLE 2

Distribution of Solo-Practitioners by Specialty, 1975

<u>Specialty</u>	<u>Universe</u>	<u>Sample</u>	<u>Percentage</u>
General Practice	5,300	1,396	26.3
General Surgery	1,852	786	42.4
Internal Medicine	2,912	942	32.3
Obstetrics/Gynecology	1,345	263	19.5
Pediatrics	1,079	247	22.3
Total	12,488	3,634	29.0

Information on claims submitted to Medicare and Medicaid for each of the physicians in the sample for each year--1972 through 1975--was obtained from Blue Shield of California. All claims paid within a three-month period of each

year were included. Because Medicare reimbursement profiles are determined by the actual date of the provision of a service, and because there is a lag between submission and payment of claims, selecting claims for the last quarter of the fiscal year, April through June, would limit the number being paid on the basis of prior year profiles. The dates of service of virtually all claims in the sample used in this study were February, March, or April.

Blue Shield is the Medicaid carrier for all of California and the Medicare carrier for 49 of its 58 counties. Occidental Insurance is the Medicare carrier for the other nine counties: Los Angeles, Orange, San Diego, Riverside, San Bernardino, Santa Barbara, San Luis Obispo, Ventura, and Imperial. Because the claims data were obtained only from Blue Shield, the data base includes:

1. all claims submitted to Medicaid on behalf of all the physicians in the sample;
2. all claims submitted to Medicare on behalf of the sample physicians from the 49 Blue Shield counties; and
3. all claims submitted jointly to Medicare and Medicaid on behalf of the sample physicians from the 9 Occidental counties.

For each claim, the variables in the data base include:

1. physician ID,
2. patient ID,
3. procedure code (1969 CRVS),
4. date of service,
5. amount billed,
6. customary (usual in Medicaid),
7. prevailing (customary in Medicaid),
8. reasonable,
9. physician specialty,
10. physician area, and
11. claim type (Medicare, nonassigned; Medicare, assigned; Medicare, mandatory assigned Medicaid).

In calculating price indices for each specialty, procedures were grouped into the following seven categories:

1. office visits--new patients,
2. office visits--established patients,
3. hospital visits,
4. surgery,
5. pathology,
6. radiology, and
7. other procedures.

Any procedures performed more than 25 times per year by a specialty were included. As a result, the procedures included in the indices vary by specialty. A list of the procedures included for each specialty appears in table 3. Because the procedures used are different for each specialty, the levels of average charges are not strictly comparable across specialties.

Volume and revenue indices were developed for all services provided by the sample physicians. Physicians in all specialties provide small quantities of a large number of surgery, radiology, pathology, and "other procedures." Volume of service indices based only on those procedures used for development of price indices may either understate or overstate changes in service delivery. The revenue indices are based on price indices constructed with the sample of over 200 procedures and the service indices based on all services provided. The price indices are based on such a large number of procedures that it is very unlikely that there are any serious biases.

The service and revenue indices are developed for the same procedure categories as the price indices. For Medicare, indices are also provided for proctosigmoidoscopy, arthrocentesis, home visits, nursing home visits, consultations, injections, and electrocardiograms. For Medicaid, additional indices were constructed for nursing home visits, consultations, immunizations, injections, and electrocardiograms.

While this data base permits a fairly comprehensive examination of price control experience in California, it is not without certain limitations. The

TABLE 3

Procedures Used for Type of Service Indices, By Specialty

<u>Office Visits--New Patient</u>	<u>General Practitioner</u>	<u>General Surgeon</u>	<u>Internist</u>	<u>Obstetrician Gynecologist</u>	<u>Pediatrician</u>
Brief evaluation, history, examination and/or treatment	X	X	X		X
Initial limited history and physical examination, including initiation of diagnostic and treatment program	X	X	X	X	X
Initial intermediate history and physical examination, including initiation of diagnostic and treatment program	X	X	X	X	X
Initial comprehensive history and physical examination, including initiation of diagnostic and treatment program, adult	X	X	X	X	
<u>Office Visits--Established Patient</u>					
Minimal service (e.g., injection, immunization, minimal dressing) (independent procedure)	X	X	X	X	X
Brief examination, evaluation and/or treatment, same or new illness	X	X	X	X	X
Limited examination, evaluation and/or treatment, same or new illness	X	X	X	X	X
Intermediate examination, evaluation and/or treatment, same or new illness	X	X	X	X	X
Extended re-examination or re-evaluation	X	X	X	X	X

Table 3 (continued)

<u>Office Visits--Established Patient</u> (continued)	<u>General Practitioner</u>	<u>General Surgeon</u>	<u>Internist</u>	<u>Obstetrician Gynecologist</u>	<u>Pediatrician</u>
Comprehensive re-examination or re-evaluation, adult	X	X	X	X	
<u>Hospital Visits</u>					
Initial hospital care, brief or limited history and physical examination, including the initiation of diagnostic and treatment program and preparation of hospital records	X	X	X		
Initial hospital care, intermediate history, and physical examination, including initiation of diagnostic and treatment program and preparation of hospital records	X	X	X		X
Initial hospital care, comprehensive history, and physical examination, including initiation of diagnostic and treatment program and preparation of hospital records	X	X	X		X
Brief examination, evaluation and/or treatment, same illness	X	X	X		X
Limited examination, evaluation and/or treatment, same or new illness	X	X	X	X	X
Intermediate examination, evaluation and/or treatment, same or new illness	X	X	X		X
Extended re-examination or re-evaluation			X		

Table 3 (continued)

<u>Surgery</u>	<u>General Practitioner</u>	<u>General Surgeon</u>	<u>Internist</u>	<u>Obstetrician Gynecologist</u>	<u>Pediatrician</u>
Incision and drainage of infected or non-infected sebaceous cyst, one lesion	X				
Incision and drainage of abscess (e.g., carbuncle, suppurative hidradenitis, and other cutaneous or subcutaneous abscesses), simple	X	X			
Incision and removal of foreign body, subcutaneous tissues, simple	X				
Electro-surgical destruction with or without surgical curettement of "active" leukoplakia, "active" actinic or senile keratoses, keratoacanthomas or facial nevi, to include anesthesia, one lesion	X	X			
Arthrocentesis, aspiration, or injection, major joint or bursa (e.g., shoulder, hip, knee joint, subacromial bursa)	X	X	X		
Tonsillectomy, with or without adenoidectomy, under age 12 years	X				
Colectomy, partial, with anastomosis		X			
Appendectomy		X			
Proctosigmoidoscopy (independent procedure), diagnostic, initial or subsequent	X	X	X		
Inguinal herniorrhaphy, age 5 or over, unilateral		X			
Dilation of female urethra including suppository and/or instillation, initial	X				

Table 3 (continued)

<u>Surgery (continued)</u>	<u>General Practitioner</u>	<u>General Surgeon</u>	<u>Internist</u>	<u>Obstetrician Gynecologist</u>	<u>Pediatrician</u>
Cauterization of cervix, electro or thermal, office	X				
Dilation and curettage, diagnostic and/or therapeutic (non-obstetrical)	X			X	
Supracervical hysterectomy: subtotal hysterectomy, with or without tubes and/or ovaries, one or both				X	
Insertion of IUD	X			X	
Total obstetrical care including antepartum care, vaginal delivery, and postpartum care (with or without low forceps and/or episiotomy)	X			X	
Therapeutic abortion, by dilation and curettage (including suction curettage)	X			X	
<u>Radiology</u>					
Chest, "minifilm" single view	X				
Chest, "minifilm" two views	X	X	X		
<u>Pathology</u>					
Urinalysis, routine, complete	X	X	X		
Urinalysis, chemical, qualitative	X				
Urinalysis, microscopic	X				
Blood, feces, occult, screening	X		X		

Table 3 (continued)

Pathology (continued)	General			Internist	Obstetrician Gynecologist	Pediatrician
	Practitioner	Surgeon				
Cholesterol, blood	X			X		
Sugar (glucose), blood	X	X		X		
Urea nitrogen, blood	X					
Uric acid, blood, chemical	X			X		
Blood count, complete	X	X		X		
Blood count, hemoglobin, colorimetric	X	X		X		X
Hematocrit	X			X		X
Prothrombin time	X			X		
Sedimentation	X					
Tuberculosis tine test	X					X
Initial microscopic examination, wet mount for bacteria, fungi, parasites, ova, inclusion bodies, any source	X				X	
Culture, blood, definitive	X				X	X
Pap smear	X			X	X	
Pap smear with review	X					
<u>Other Procedures</u>						
Home visit, brief evaluation, new patient	X					
Home visit, limited examination, established patient	X			X		

Table 3 (continued)

<u>Other Procedures (continued)</u>	<u>General Practitioner</u>	<u>General Surgeon</u>	<u>Internist</u>	<u>Obstetrician Gynecologist</u>	<u>Pediatrician</u>
Home visit, intermediate examination established patient	X				
Nursing home visit, brief examination	X		X		
Nursing home visit, limited examination	X	X	X		
Nursing home visit, intermediate examination	X		X		
Emergency room, brief evaluation	X		X		
Emergency room, limited examination		X	X		
Injection with other service	X	X	X	X	X
Electrocardiogram, with interpretation and report	X	X	X		
Consultation requiring LIMITED examination and/or evaluation of a given system but not requiring a comprehensive history and examination, home, office, or hospital		X	X		
Consultation requiring MORE EXTENSIVE examination and/or evaluation but not requiring comprehensive history and examination, home, office, or hospital		X	X	X	X
Consultation requiring COMPREHENSIVE history and examination and/or evaluation, office, home, or hospital		X			

primary problem is that we have received data for all claims paid in the second quarter of each year. Year-to-year changes in claims paid will only correspond to changes in services provided if the same percentage of claims received in each quarter were paid during that quarter. If the ratio of claims paid to claims received (services rendered) increases from one year to the next, the result will be a downward bias in our estimates of the rate of change of the number of services, and vice versa. To assure that our claims data accurately reflect services provided, we have adjusted all service count estimates for a constant rate of claims processing.

A second problem is that we do not have all claims for diagnostic services ordered by the sample physicians. Laboratory and radiology services can be performed by the physicians themselves or at outside facilities such as labs, clinics, and outpatient departments. If these facilities bill the physician, who in turn submits the claim to Medicare or Medicaid, such claims would appear in our data files. If, however, the outside facility bills the program directly, we have no information on the service. Thus, our data on quantities of diagnostic services understate the true volume. However, unless there are major shifts to or away from direct billing by physicians for diagnostic services, the measured rates of change will be good indicators of the actual growth. Because the same physicians appear in our sample in each year, changes in billing procedures should not be a major problem.

III. CHANGES IN PRICES, 1972-1975

A. Price Increases--1972 Service Weights1. All Procedure Indices

In this section, price indices constructed using 1972 service weights are described. These indices were prepared for both actual and reasonable charges and reflect changes in both price measures for a fixed mix of procedures. Tables 4 and 5 provide price indices for each program by specialty and year. They also show the changes in the ratio of actual to reasonable charges over the four-year period.

In 1973, actual charges for Medicare assigned claims increased by less than the 2.5 percent permitted by ESP (table 4) for internists and general surgeons, but at slightly faster rates for general practitioners. The index rose to over 1.09 in 1974 for each of the three specialties, reflecting the removal of controls, and then jumped in 1975 to 1.228 for general practitioners, 1.231 for general surgeons, and 1.223 for internists. The charge indices for nonassigned claims rose faster in 1973 than for assigned claims for internists and general surgeons. The index rose to 1.036 for both specialties, slightly faster than permitted by ESP. In 1974 and 1975, the nonassigned claims index increased at rates very comparable to the assigned claims index. For Medicare in general, there was surprisingly little variation among specialties in the rate of fee increases.

Increases in reasonable charges were kept well within the targeted limits for assigned and nonassigned claims. The reasonable charge index for assigned claims increased by about 1 percent in 1973 and roughly another 2 percent in 1974. The index for nonassigned claims increased by about 2 percent on average between 1972 and 1973 and slightly less than 2 percent between 1973 and 1974. The indices jumped to between 1.09 and 1.11 in 1975,

TABLE 4

Actual and Reasonable Charges for
Medicare Claims,
Using 1972 Service Weights

	Assigned				Nonassigned				
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	
General Practitioners	Mean Actual Charge (Index)	1.000	1.029	1.094	1.228	1.000	1.028	1.094	1.232
	Mean Reasonable Charge (Index)	1.000	1.013	1.025	1.099	1.000	1.017	1.031	1.091
	Ratio of Actual to Reasonable Charge	1.105	1.125	1.188	1.249	1.117	1.142	1.204	1.270

General Surgeons	Mean Actual Charge (Index)	1.000	1.022	1.098	1.231	1.000	1.036	1.080	1.214
	Mean Reasonable Charge (Index)	1.000	1.006	1.032	1.089	1.000	1.017	1.031	1.091
	Ratio of Actual to Reasonable Charge	1.107	1.140	1.195	1.278	1.123	1.157	1.209	1.263

Internists	Mean Actual Charge (Index)	1.000	1.022	1.098	1.231	1.000	1.036	1.101	1.222
	Mean Reasonable Charge (Index)	1.000	1.006	1.032	1.089	1.000	1.028	1.047	1.114
	Ratio of Actual to Reasonable Charge	1.121	1.140	1.191	1.270	1.138	1.154	1.207	1.267

TABLE 5

Actual and Reasonable Charges for
Medicaid Claims,
Using 1972 Service Weights

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
General Practitioners	Mean Actual Charge (Index)	1.000	1.001	1.208
	Mean Reasonable Charge (Index)	1.000	.972	1.050
	Ratio of Actual to Reasonable Charge	1.185	1.154	1.385

General Surgeons	Mean Actual Charge (Index)	1.000	1.120	1.256
	Mean Reasonable Charge (Index)	1.000	1.044	1.064
	Ratio of Actual to Reasonable Charge	1.204	1.271	1.446

Internists	Mean Actual Charge (Index)	1.000	1.085	1.206
	Mean Reasonable Charge (Index)	1.000	1.028	1.049
	Ratio of Actual to Reasonable Charge	1.269	1.344	1.469

Obstetricians- Gynecologists	Mean Actual Charge (Index)	1.000	.981	1.172
	Mean Reasonable Charge Index	1.000	1.021	1.020
	Ratio of Actual to Reasonable Charge	1.276	1.318	1.437

Table 5 (continued)

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Mean Actual Charge (Index)	1.000	1.008	1.078	1.215
Pediatricians				
Mean Reasonable Charge (Index)	1.000	1.021	1.035	1.088
Ratio of Actual to Reasonable Charge	1.151	1.136	1.188	1.303

reflecting the fact that in the two price control years, reasonable charges were permitted to increase at only 40 percent and 55 percent of the calculated charge. As a result, when controls were lifted, 1975 reasonables reflected the actual growth in billings from calendar 1971 through 1973. Internists experienced slightly faster increases in reasonable charges throughout the period.

Actual charges for Medicaid nonaged patients increased at slower rates than for Medicare. For example, the fee index for general practitioners increased to only 1.001 in 1973 and 1.025 in 1974. For internists, the fee indices rose to 1.005 in 1973 and 1.083 in 1974. Fees of pediatricians also rose slowly during controls.

Since evidence presented elsewhere indicates that individual physicians do not discriminate between programs in setting fees, it is likely that somewhat different sets of physicians practice in the two programs.⁵ Medicaid fees, like Medicare fees, rose markedly between 1974 and 1975; the 1975 Medicaid index was 1.208 for general practitioners, 1.205 for internists, and 1.256 for general surgeons. With respect to Medicaid nonaged patients, there are some noteworthy differences among specialties; fees of general surgeons rose at rates significantly above average, while fees of OB-GYNs rose at slightly slower rates.

Medicaid reasonable amounts rose at slower rates than those for Medicare, reflecting the tighter controls imposed by that program. In 1973, the Medicaid reasonable charge index rose by roughly 1 percent for general practitioners and obstetrician-gynecologists, by 2 percent for internists and pediatricians, and by 3.5 percent for general surgeons. These increases reflect the 2.5 percent increase in Medicaid fee screens permitted in late 1972. Medicaid fees increased by about 1 percent in 1974 and then rose markedly in 1975, particularly for general practitioners and pediatricians.

The increases in 1974 and 1975 reflect changes in the composition of Medicaid participating physicians, either increased participation of physicians with higher fees or discontinued participation of physicians with low reasonable charges, or both. They do not reflect changes in fee screens imposed by the program, since fee screens were held fixed.

The actual to reasonable charge ratios were higher for Medicaid than for Medicare as a result of the controls on Medicaid fees that were continuously in place. In 1972, Medicaid actual charges exceeded reasonable charges by 18.5 percent for general practitioners, 20.4 percent for general surgeons, 26.9 percent for internists, 27.6 percent for obstetrician-gynecologists, and 15.1 percent for pediatricians. These differentials rose slowly during the initial control years because actual charges changed very little. However, by 1975 actual charges exceeded reasonable charges by 38.5 percent for general practitioners, 44.6 percent for general surgeons, 46.9 percent for internists, 43.7 percent for obstetrician-gynecologists, and 30.3 percent for pediatricians. This rapid growth in the differential between actual charges and reimbursements may have contributed to the change in the composition of participating physicians that was mentioned above.

2. Procedure Type Indices

Tables 6 through 9 present data on actual and reasonable charges by specialty and type of procedure. Tables 6 and 7 provide that information for Medicare, and tables 8 and 9 for Medicaid. These tables provide data on charges for each procedure. Variations in the levels of charges among specialties reflect differences in the composition of services in each specialty as well as differences in prices among specialties for the same procedures. Once again, both the actual and reasonable charge indices were constructed using 1972 service weights and thus reflect changes in prices for a constant mix of services.

Table 6 clearly shows that there are few important differences among specialties in rates of change in Medicare fees. General surgeons increased fees for lab procedures faster than general practitioners and internists; otherwise, all specialists behaved similarly. The most rapid rise in fees occurred in the visit categories. Established patient fees in the office visits category rose most quickly in each year. Fees in the new patient office visit and hospital visit categories also rose at faster than average rates. Fees for surgery, radiology, pathology, and "other procedures" rose more slowly.

Table 7 provides similar information for Medicare reasonable charges. The same pattern emerges--there are no important differences among specialties. Surgeons' fees for lab tests and surgical procedures increased faster than those of internists and general practitioners. Reasonable charges for the visit categories again rose more quickly than for other procedures. Reimbursement rates for hospital visits rose more rapidly over the four-year period for general surgeons and general practitioners, while fees for established patient office visits increased most for internists. Reasonable charge increases for "other procedures" and radiology were least important in Medicare.

As noted earlier, there is considerably more variation among specialties in both actual and reasonable charges in Medicaid than in Medicare. Fees for general practitioners, internists, and pediatricians all rose by about 21 percent from 1972 to 1975. However, general surgeons' fees to Medicaid patients rose more quickly in each year, and the fee index rose to 1.256 in 1975. On the other hand, fees of OB-GYNs rose by only 17.2 percent between 1972 and 1975. As demonstrated in tables 8 and 9, fees for established patient office visits and hospital visits again outpaced the average. "Other procedures" fees also increased at above-average rates. Surgery, radiology, and pathology fees again

TABLE 6

Medicare Actual Charges, by Specialty and Type of Procedure, Using
1972 Service Weights

	Mean Charge	Index (1972=1.000)				Mean Charge	Index (1972=1.000)			
	1972	1973	1974	1975		1972	1973	1974	1975	
		<u>New Patient Office Visits</u>					<u>Surgical Procedures</u>			
General Practitioner	17.819	1.002	1.067	1.197		18.037	1.046	1.092	1.173	
General Surgeon	18.282	1.058	1.091	1.205		126.362	1.021	1.086	1.217	
Internist	34.019	1.023	1.092	1.210		16.381	1.046	1.084	1.155	
		<u>Established Patient Office Visits</u>					<u>Radiology Procedures</u>			
General Practitioner	8.373	1.030	1.096	1.233		17.435	1.010	1.051	1.157	
General Surgeon	9.213	1.043	1.114	1.256		19.230	1.015	1.079	1.199	
Internist	11.189	1.029	1.101	1.241		18.150	1.036	1.066	1.214	
		<u>Hospital Visits</u>					<u>Pathology Procedures</u>			
General Practitioner	11.645	1.031	1.107	1.146		4.066	1.028	1.065	1.190	
General Surgeon	11.924	1.017	1.076	1.223		3.966	1.027	1.132	1.236	
Internist	14.567	1.020	1.102	1.223		4.684	1.032	1.083	1.198	
		<u>Other Procedures</u>					<u>All Procedures</u>			
General Practitioner	7.503	1.026	1.081	1.169		8.804	1.029	1.094	1.229	
General Surgeon	14.206	1.013	1.080	1.178		14.986	1.027	1.092	1.225	
Internist	13.611	1.183	1.239	1.350		12.623	1.043	1.114	1.239	

TABLE 8

Medicaid Actual Charges, by Specialty and Type of Procedure, Using 1972 Service Weights

	Mean	Index (1972=1.000)				Mean	Index (1972=1.000)			
	Charge	1972	1973	1974	1975	Charge	1972	1973	1974	1975
		<u>New Patient Office Visits</u>					<u>Surgical Procedures</u>			
General Practitioner	15.294	1.008	1.094	1.176	107.272	0.999	1.070	1.173		
General Surgeon	17.040	1.075	1.166	1.299	168.073	0.985	1.108	1.200		
Internist	26.481	1.042	1.040	1.202	15.674	0.831	1.008	1.124		
Obstetrician- Gynecologist	24.547	1.056	1.101	1.203	230.325	0.972	1.061	1.169		
Pediatrician	15.402	1.000	1.109	1.207	-	-	-	-		
		<u>Established Patient Office Visits</u>					<u>Radiology Procedures</u>			
General Practitioner	8.511	1.003	0.973	1.210	18.457	0.961	1.059	1.173		
General Surgeon	9.780	1.042	1.107	1.294	19.300	0.965	1.072	1.266		
Internist	10.881	1.016	1.107	1.238	19.140	0.052	1.095	1.214		
Obstetrician- Gynecologist	10.857	0.998	1.069	1.175	-	-	-	-		
Pediatrician	9.271	1.000	1.068	1.216	-	-	-	-		
		<u>Hospital Visits</u>					<u>Pathology Procedures</u>			
General Practitioner	13.360	0.996	1.100	1.303	3.951	1.020	0.978	1.184		
General Surgeon	13.361	1.013	1.118	1.254	4.092	1.079	1.229	1.244		
Internist	15.464	0.974	1.066	1.169	4.760	0.991	1.036	1.206		
Obstetrician- Gynecologist	9.210	1.079	1.144	1.454	5.135	0.994	1.040	1.154		
Pediatrician	13.238	1.026	1.080	1.245	3.717	1.039	1.195	1.277		

Table 8 (continued)

	Mean Charge	Index (1972=1.000)				Mean Charge	Index (1972=1.000)			
	1972	1973	1974	1975	1972	1973	1974	1975		
		Other Procedures					All Procedures			
General Practitioner	5.242	0.982	1.109	1.231	9.521	1.001	1.025	1.208		
General Surgeon	11.117	1.022	1.125	1.217	14.062	1.026	1.120	1.256		
Internist	13.611	1.026	1.108	1.206	12.623	1.005	1.085	1.206		
Obstetrician- Gynecologist	6.677	0.932	1.032	1.140	42.358	0.981	1.065	1.172		
Pediatrician	6.379	0.954	1.062	1.121	9.431	1.008	1.078	1.215		

TABLE 9

Medicaid Reasonable Charges, by Specialty and Type of Procedure, Using 1972 Service Weights

	Mean Charge		Index (1972=1.000)			Mean Charge	Index (1972=1.000)		
	1972	1973	1974	1975	1976	1972	1973	1974	1975
	<u>New Patient Office Visits</u>								
General Practitioner	13.235	1.022	1.055	1.066		87.907	1.000	1.022	1.044
General Surgeon	14.570	1.082	1.123	1.137		137.258	1.012	1.020	1.009
Internist	21.863	1.047	0.997	1.052		14.002	0.859	0.969	1.069
Obstetrician-Gynecologist	22.496	1.044	1.063	1.100		165.928	0.999	1.013	1.002
Pediatrician	14.805	1.007	1.053	1.124		-	-	-	-
	<u>Established Patient Office Visits</u>								
General Practitioner	7.259	1.013	0.920	1.040		14.446	1.017	1.023	1.042
General Surgeon	8.041	1.046	1.019	1.085		15.990	0.977	0.976	0.999
Internist	8.917	1.026	1.030	1.061		16.260	1.017	1.028	1.028
Obstetrician-Gynecologist	8.977	1.027	1.036	1.050		-	-	-	-
Pediatrician	8.244	1.033	1.034	1.091		-	-	-	-
	<u>Hospital Visits</u>								
General Practitioner	10.963	1.021	1.013	1.019		3.082	1.031	0.915	1.049
General Surgeon	10.873	1.030	1.060	1.044		3.435	1.026	1.037	1.021
Internist	11.755	1.016	1.034	1.035		3.565	1.020	0.995	1.034
Obstetrician-Gynecologist	8.690	1.076	1.122	1.217		3.872	1.007	0.996	1.009
Pediatrician	11.273	1.017	1.038	1.095		2.968	1.030	1.050	1.172

Table 9 (continued)

	Mean	Index (1972=1.000)				Mean	Index (1972=1.000)			
	Charge	1972	1973	1974	1975	Charge	1972	1973	1974	1975
		Other Procedures					All Procedures			
General Practitioner	4.511		1.002	1.052	1.075			1.013	0.972	1.050
General Surgeon	9.671		1.011	1.064	1.062			1.035	1.044	1.064
Internist	11.143		1.019	1.040	1.044			1.022	1.028	1.049
Obstetrician- Gynecologist	4.747		0.997	1.027	1.054			1.008	1.021	1.020
Pediatrician	5.383		0.953	0.996	0.997			1.021	1.035	1.088

rose more slowly, with the exception of the large increase in the pathology fee index for general surgeons and pediatricians and in the radiology fee index for internists.

Despite the freeze on Medicaid reasonable charges, actual reimbursement rates for Medicaid also exhibited considerable growth and variation among specialties. Changes in average reimbursement levels primarily reflect a change in Medicaid participation among physicians. Average reasonable charges for general surgeons and pediatricians rose by 6.4 percent and 8.8 percent over the four-year period. Reasonable charges of internists and general practitioners increased by 5 percent, while OB-GYNs' fee screens increased by only 2 percent over the entire period. Average reimbursement rates of general surgeons rose steadily over the period. Other specialties' reimbursement rates increased very slowly during control years; in 1975, pediatricians, general practitioners, and internists all had surprising increases in light of the continued freeze on Medicaid rates. General surgeons' rate increases stemmed from higher office visit and "other procedures" fees. Pediatricians' rate increases were principally due to increased office visit and hospital visit fees. The slow overall rates of increase in OB-GYN and pathology fees appear to result from the stability of surgery fees; office and hospital visit fees rose as rapidly for OB-GYNs as for other specialties.

B. Price Increases--Current Year Service Weights

1. All Procedure Indices

Physicians can increase average prices not only by increasing fees for the same mix of services, but also by changing the mix of services and increasing the proportion of expensive, relative to inexpensive, services. A portion of the shift to more expensive procedures is attributable to changes in the real

services provided, e.g., increases in physician time and other inputs per service. However, to the extent that the level of inputs involved in providing the services does not change, these changes represent price increases. In this section, tables 10 through 15, which contain price indices reflecting the current mix of services, are described. The results, in general, indicate that average fees increased much faster than indicated by the fixed weight indices. For assigned claims (table 10), actual charges in the first year of controls increased by 5.5 percent for general practitioners, 5.1 percent for general surgeons, and 3.3 percent for internists. For nonassigned claims (table 11), actual charges increased even more quickly--by 6.3 percent for general practitioners, 13.5 percent for general surgeons, and 4.8 percent for internists. In 1974, the actual index charge using current service weights again rose more rapidly than the index using 1972 service weights. By 1975, the actual charge indices had risen to 1.327 (assigned) and 1.302 (nonassigned) for general practitioners, to 1.281 (assigned) and 1.383 (nonassigned) for general surgeons, and to 1.286 (assigned) and 1.252 (nonassigned) for internists. Each current service weight index was greater than the comparable base year service weight index.

Increases in reasonable charges using current service weights reflect the change in average fee per claim received by physicians. Examination of fee indices constructed with current service weights reveals that actual reimbursements increased at least twice as fast as with a constant mix of services. Rates of increase for the indices for each of the three specialties shown in table 10 were typically double those for the corresponding indices in table 4. For example, the reasonable charge indices for general surgeons rose to 1.038 in 1973 and 1.075 in 1974 for assigned claims and to 1.119 in 1973 and 1.096 in

TABLE 10

Actual and Reasonable Charges For
Medicare Claims,
Using Current Service Weights

	Assigned				Nonassigned			
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Mean Actual Charge (Index)	1.000	1.055	1.129	1.327	1.000	1.063	1.131	1.302
Mean Reasonable Charge (Index)	1.000	1.041	1.061	1.205	1.000	1.044	1.060	1.171
Ratio of Actual to Reasonable Charge -----	1.105	1.121	1.184	1.222	1.117	1.138	1.199	1.243
Mean Actual Charge (Index)	1.000	1.051	1.140	1.281	1.000	1.135	1.144	1.383
Mean Reasonable Charge (Index)	1.000	1.038	1.075	1.145	1.000	1.119	1.096	1.252
Ratio of Actual to Reasonable Charge -----	1.107	1.136	1.188	1.248	1.123	1.149	1.191	1.239
Mean Actual Charge (Index)	1.000	1.033	1.118	1.286	1.000	1.048	1.127	1.252
Mean Reasonable Charge (Index)	1.000	1.022	1.061	1.171	1.000	1.045	1.077	1.150
Ratio of Actual to Reasonable Charge	1.121	1.137	1.186	1.239	1.138	1.143	1.194	1.240

General
Practi-
tionersGeneral
Surgeons

Internists

TABLE 11

Actual and Reasonable Charges For
Medicaid Claims,
Using Current Service Weights

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
General Practitioners				
Mean Actual Charge (Index)	1.000	1.002	.996	1.268
Mean Reasonable Charge (Index)	1.000	1.018	.946	1.127
Ratio of Actual to Reasonable Charge -----	1.185	1.168	1.144	1.371
General Surgeons				
Mean Actual Charge (Index)	1.000	.965	1.145	1.265
Mean Reasonable Charge (Index)	1.000	.973	1.069	1.084
Ratio of Actual to Reasonable Charge -----	1.204	1.209	1.263	1.427
Internists				
Mean Actual Charge (Index)	1.000	1.006	1.106	1.247
Mean Reasonable Charge (Index)	1.000	1.029	1.049	1.099
Ratio of Actual to Reasonable Charge -----	1.269	1.252	1.330	1.454

Table 11 (continued)

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Mean Actual Charge (Index)	1.000	.976	1.010	1.086
Mean Reasonable Charge (Index)	1.000	1.006	.980	.964
Ratio of Actual to Reasonable Charge	1.276	1.232	1.300	1.401

Mean Actual Charge (Index)	1.000	.980	1.073	1.232
Mean Reasonable Charge (Index)	1.000	.994	1.038	1.126
Ratio of Actual to Reasonable Charge	1.151	1.137	1.178	1.285

Obste-
tricians-
Gyne-
cologists

Pedia-
tricians

1974 for nonassigned claims. The level of the indices also exceeded ESP guidelines for internists and general practitioners, though not as dramatically.

The Medicaid experience was somewhat different. Average charges in 1973 were either unchanged or fell slightly for each specialty. Fees of general surgeons, OB-GYNs, and pediatricians were actually lower than the 1972 service weight indices. A similar pattern emerged in 1974. In 1975, the current service weight indices exceeded the base year indices in all specialties other than OB-GYNs. The changes during 1973 and 1974 actually reflect a shift to a less expensive procedure mix, while the increase in 1975 reflects the Medicare pattern--a greater proportion of expensive relative to inexpensive services. It may also reflect a decline in participation of physicians constrained by low fee screens. The pattern of OB-GYN reimbursement rates may reflect an increase in the proportion of abortions to births, which are more expensive, or other changes in procedure mix.

The Medicaid reasonable charge indices either remained constant or declined in 1973 and 1974 for general practitioners, OB-GYNs, and pediatricians. The reasonable charge index actually increased by 1974 to 1.069 for general surgeons and to 1.049 for internists, despite an increase of only 2.5 percent in Medicaid fees. That increase applied to all services for all physicians. Thus, both the failure of reimbursements to increase for three specialties and the large increases for the other two are surprising. Both result from changes in the composition of physicians participating in the program and the extensiveness of that participation. For example, the increase in reasonable charges of general surgeons and internists probably reflects a decrease in participation of low-fee physicians. In 1975, reimbursement levels of all specialists other than OB-GYNs rose significantly. The reasonable charge index increased to 1.127 for

general practitioners, 1.084 for general surgeons, 1.099 for internists, and 1.126 for pediatricians. Increases in reasonable charges are surprising, given the continuation of the freeze imposed by Medicaid. The increases in reasonable charges would seem to stem from changes in participation as physicians became increasingly dissatisfied with Medicaid fees relative to their normal charges. The reduction in reimbursement rates for OB-GYNs is unlikely to be due to participation changes, but more likely is the result of a decrease in the relative proportion of expensive procedures. The difference between actual and reasonable charges, also shown in table 11, increased dramatically in 1975 for all specialties.

2. Procedure Type Indices

Tables 12 through 15 provide sets of price indices that show changes in charges and reimbursement rates by program, specialty, and type of procedure. They give information on the sources of charge and reimbursement rate increases for each program. An examination of the indices using 1972 service weights revealed that office visits and hospital visits had above-average rates of increase. The differences in rates of increase among all types of procedures, however, were quite small. When current year service weights were applied, the differences among procedures were significantly greater. Surgery, radiology, and pathology fees increased much more slowly than the average for all procedures and at rates comparable to those observed when 1972 weights were employed. Office visits and hospital visit charges grew at the same rate or slightly faster than the average, but markedly faster than surgery, radiology, and pathology charges. The increases in fees for visits were due to changes toward a more complex mix of procedures. The most important difference when current year weights were applied was in the "other procedures" category. Charges for

TABLE 12

Medicare Actual Charges, by Specialty and Type of Procedure, Using
Current Service Weights

	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>			<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
	<u>New Patient Office Visits</u>							
General Practitioner	17.819	1.035	1.113	1.289	18.037	1.038	1.093	1.124
General Surgeon	18.282	1.109	1.134	1.268	126.362	1.120	1.102	1.222
Internist	34.019	1.032	1.062	1.198	16.381	1.049	1.116	1.187
	<u>Established Patient Office Visits</u>							
General Practitioner	8.373	1.055	1.131	1.303	17.435	1.017	1.056	1.167
General Surgeon	9.213	1.060	1.169	1.336	19.230	1.015	1.079	1.199
Internist	11.189	1.048	1.133	1.288	18.150	1.036	1.066	1.214
	<u>Hospital Visits</u>							
General Practitioner	11.645	1.064	1.144	1.335	4.066	1.029	1.062	1.195
General Surgeon	11.924	1.010	1.135	1.310	3.966	1.031	1.136	1.240
Internist	14.567	1.030	1.123	1.267	4.684	1.025	1.071	1.182
	<u>Other Procedures</u>							
General Practitioner	7.503	1.077	1.131	1.525	8.804	1.057	1.130	1.320
General Surgeon	14.206	1.064	1.185	1.557	14.986	1.072	1.139	1.315
Internist	15.635	1.071	1.143	1.374	12.883	1.040	1.119	1.264
	<u>All Procedures</u>							
General Practitioner								
General Surgeon								
Internist								

Medicare Reasonable Charges, by Specialty and Type of Procedure, Using Current Service Weights

	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
	<u>New Patient Office Visits</u>			
General Practitioner	16.439	1.029	1.044	1.180
General Surgeon	16.777	1.072	1.060	1.160
Internist	30.329	1.025	1.003	1.112
	<u>Established Patient Office Visits</u>			
General Practitioner	7.817	1.037	1.063	1.170
General Surgeon	8.500	1.027	1.088	1.168
Internist	10.148	1.039	1.076	1.163
	<u>Hospital Visits</u>			
General Practitioner	10.734	1.044	1.067	1.189
General Surgeon	10.832	0.998	1.092	1.197
Internist	13.164	1.025	1.067	1.160
	<u>Other Procedures</u>			
General Practitioner	6.226	1.068	1.075	1.474
General Surgeon	12.461	1.048	1.105	1.440
Internist	13.670	1.069	1.110	1.307
	<u>All Procedures</u>			
General Practitioner	16.439	1.029	1.044	1.180
General Surgeon	16.777	1.072	1.060	1.160
Internist	30.329	1.025	1.003	1.112
	<u>Surgical Procedures</u>			
General Practitioner	16.439	1.029	1.044	1.180
General Surgeon	16.777	1.072	1.060	1.160
Internist	30.329	1.025	1.003	1.112
	<u>Radiology Procedures</u>			
General Practitioner	7.817	1.037	1.063	1.170
General Surgeon	8.500	1.027	1.088	1.168
Internist	10.148	1.039	1.076	1.163
	<u>Pathology Procedures</u>			
General Practitioner	10.734	1.044	1.067	1.189
General Surgeon	10.832	0.998	1.092	1.197
Internist	13.164	1.025	1.067	1.160
	<u>All Procedures</u>			
General Practitioner	16.439	1.029	1.044	1.180
General Surgeon	16.777	1.072	1.060	1.160
Internist	30.329	1.025	1.003	1.112

TABLE 14

Medicaid Actual Charges, by Specialty and Type of Procedure, Using
Current Service Weights

	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>
	<u>1972</u>	<u>1973</u>	<u>1972</u>	<u>1973</u>
	<u>New Patient Office Visits</u>			
General Practitioner	15.294	1.040	1.666	1.288
General Surgeon	17.040	1.158	1.263	1.245
Internist	26.481	1.010	1.091	1.239
Obstetrician-Gynecologist	24.547	1.074	1.136	1.261
Pediatrician	15.402	0.974	1.120	1.267
	<u>Surgical Procedures</u>			
			<u>1972</u>	<u>1973</u>
			<u>1974</u>	<u>1975</u>
General Practitioner			107.272	0.917
General Surgeon			168.073	0.834
Internist			15.674	0.861
Obstetrician-Gynecologist			230.325	0.973
Pediatrician			-	-
	<u>Radiology Procedures</u>			
General Practitioner	8.511	1.033	1.007	1.303
General Surgeon	9.780	1.051	1.205	1.427
Internist	10.881	1.057	1.143	1.287
Obstetrician-Gynecologist	10.857	1.028	1.174	1.343
Pediatrician	9.271	1.035	1.112	1.294
	<u>Pathology Procedures</u>			
General Practitioner	13.360	0.977	1.067	1.356
General Surgeon	13.361	1.020	1.217	1.379
Internist	15.464	0.985	1.119	1.248
Obstetrician-Gynecologist	9.210	1.080	1.144	1.454
Pediatrician	13.238	1.077	1.114	1.325

Table 14 (continued)

	<u>Mean Charge</u>		<u>Index (1972 = 1.000)</u>				<u>Mean Charge</u>		<u>Index (1972 = 1.000)</u>			
	<u>1972</u>		<u>1973</u>	<u>1974</u>	<u>1975</u>		<u>1972</u>		<u>1973</u>	<u>1974</u>	<u>1975</u>	
			<u>Other Procedures</u>						<u>All Procedures</u>			
General Practitioner	5.242		1.049	1.148	1.229		9.521		1.002	0.996	1.268	
General Surgeon	11.117		0.939	1.102	1.163		14.062		0.965	1.145	1.265	
Internist	13.611		0.940	1.085	1.217		12.623		1.006	1.106	1.247	
Obstetrician-Gynecologist	6.677		1.007	0.994	1.114		39.860		1.037	1.073	1.154	
Pediatrician	6.379		0.813	0.961	1.048		9.431		0.980	1.073	1.232	

TABLE 15

Medicaid Reasonable Charges, by Specialty and Type of Procedure, Using
Current Service Weights

	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>			<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
	<u>New Patient Office Visits</u>							
General Practitioner	13.235	1.061	1.143	1.206	87.907	0.912	0.947	1.077
General Surgeon	14.570	1.182	1.225	1.268	137.258	0.850	0.918	0.900
Internist	21.863	1.018	1.054	1.104	14.002	0.885	1.033	1.124
Obstetrician-Gynecologist	22.496	1.062	1.099	1.165	165.928	1.003	1.037	1.052
Pediatrician	14.805	0.978	1.067	1.196	-	-	-	-
	<u>Surgical Procedures</u>							
	<u>Radiology Procedures</u>							
General Practitioner	7.259	1.047	0.956	1.145	14.446	1.008	1.033	1.045
General Surgeon	8.041	1.060	1.115	1.228	15.990	0.977	0.976	0.999
Internist	8.917	1.073	1.066	1.109	16.260	1.017	1.028	1.028
Obstetrician-Gynecologist	8.977	1.062	1.170	1.266	-	-	-	-
Pediatrician	8.244	1.065	1.091	1.194	-	-	-	-
	<u>Pathology Procedures</u>							
	<u>Hospital Visits</u>							
General Practitioner	10.963	1.002	0.979	1.130	3.082	0.992	0.837	1.033
General Surgeon	10.873	1.038	1.162	1.155	3.435	0.948	0.977	1.067
Internist	11.755	1.028	1.090	1.129	3.565	0.988	0.889	0.960
Obstetrician-Gynecologist	8.690	1.076	1.122	1.217	3.872	0.921	0.957	0.989
Pediatrician	11.273	1.071	1.075	1.177	2.968	1.052	1.098	1.118

Table 15 (continued)

	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>			<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
	<u>Other Procedures</u>				<u>All Procedures</u>			
General Practitioner	4.511	1.076	1.078	1.057	8.028	1.018	0.946	1.127
General Surgeon	9.671	0.922	1.031	0.999	11.681	1.027	1.051	1.095
Internist	11.143	0.927	1.013	1.051	10.104	1.029	1.049	1.099
Obstetrician-Gynecologist	4.747	1.095	0.976	1.023	31.723	1.006	0.980	0.964
Pediatrician	5.383	0.795	0.895	0.932	8.345	0.994	1.038	1.126

"other procedures" rose in 1973 to 1.077 for general practitioners, 1.064 for general surgeons, and 1.071 for internists and in 1974 to 1.131 for general practitioners, 1.185 for general surgeons, and 1.143 for internists. The most dramatic changes occurred in 1975 when the actual charge index grew to 1.525 for general practitioners, 1.557 for general surgeons, and 1.374 for internists. These increases are far in excess of those observed when 1972 service weights were used. They indicate major shifts in billing patterns for procedures such as nursing home visits, emergency room visits, home visits, and consultations.

Changes in reasonable charges exhibited similar patterns when current year weights were used. Changes in reasonable charge screens for both office visit categories and for hospital visits increased at rates roughly equal to the average. The rate of increase was almost double that observed for the 1972 service weight indices. Pathology, radiology, and surgery reasonable charges increased at rates very close to those observed for the 1972 service indices, reflecting no change in service complexity. Again, the most dramatic changes were in "other procedures." Reasonable charges for "other procedures" increased three to five times faster when current service weights, instead of 1972 service weights, were used. Once again, this reflects major changes in billing patterns for these procedures. That is, physicians were submitting claims for more complicated services in such categories as nursing home visits, home visits, and consultations. The most dramatic change came in 1975, after price controls were eliminated.

The Medicaid charge indices based on current year weights also increased much faster than those calculated with 1972 service weights. However, the reasons for the variations between the two are somewhat different. The major

differences between the two sets of indices were in the visit categories. Throughout the four-year period, physicians raised fees for office and hospital visits by submitting claims for increasingly complicated procedures. This undoubtedly reflects the length of the period of controls on Medicaid fees and physicians' attempts to bring Medicaid reimbursements in line with those from other programs. The radiology and pathology actual charge indices tended to follow the indices based on 1972 service weights. Changes in the surgery fee indices were mixed, with surgeons and internists seemingly moving to a less complex mix of surgical procedures. Somewhat surprisingly, in contrast with Medicare experience, there was little variation in the two indices for "other procedures." Several specialties seem to have moved to a less complex mix of "other procedures." Services such as injections and immunizations assume more importance in the Medicaid "other procedures" index.

The same pattern emerged for Medicaid reasonable charges. A reasonable charge index based on current service weights is the best indicator of the actual success the Medicaid program had in controlling physician fees. It is clear from table 15 that, in reality, Medicaid fees were not frozen. The fee index for established patient office visits, the most important type of service in terms of number of procedures, increased in 1973 to 1.047 for general practitioners, 1.060 for general surgeons, 1.073 for internists, 1.062 for OB-GYNs, and 1.065 for pediatricians. By 1975, the same indices had risen to 1.145 for general practitioners, 1.228 for OB-GYNs, and 1.194 for pediatricians. Similar patterns appear for new patient office visits and hospital visits. Reimbursement levels for surgery were slightly higher when current service weights were applied, and pathology and radiology fees were roughly the same. Fees for

"other procedures" were again lower in Medicaid when current service weights were employed, suggesting that physicians provided fewer of the most highly priced of those services.

C. Current Year Price Indices Decomposed

In this section, the current service weight price indices are decomposed into a "pure" price index and a measure of service intensity. The "pure" price index shows changes in average price per RVS unit. If the number of RVS units for each procedure were perfectly correlated with the inputs required to produce it, this index would, in effect, transform the service package into a "standard" procedure and permit analysis of price changes for that standard procedure. The service intensity index, which is simply the number of RVS units per service, would measure changes in the input levels per service. Because RVS units are not perfect measures of inputs, some of the true price change will be reflected in the service intensity index. However, in comparison with the two sets of indices presented previously, the index-based price per RVS unit comes closest to reflecting the actual change in price for physician services. The value of the service intensity index is that it permits analysis of changes in service complexity over time.

1. Charges and Reimbursement per RVS Unit

a. Medicare. Indices of Medicare actual charges per RVS unit are presented in tables 16 and 17. Tables 18 and 19 contain comparable indices for Medicaid. Once again, this information permits a determination of the degree to which the observed change in charges results from price changes for standardized units of service. Most of the pattern of price changes was described in earlier sections. However, there are some noteworthy results.

TABLE 16

Medicare Actual Charges per RVS Unit, by Specialty and
Type of Procedure

	<u>Mean Charge</u>		<u>Index (1972 = 1.000)</u>		<u>Mean Charge</u>		<u>Index (1972 = 1.000)</u>	
	1972	1973	1974	1975	1972	1973	1974	1975
	<u>New Patient Office Visits</u>				<u>Surgical Procedures</u>			
General Practitioner	.623	.987	1.042	1.154	.578	1.038	1.078	1.164
General Surgeon	.657	1.041	1.079	1.192	.707	.996	1.078	1.182
Internist	.649	1.017	1.097	1.191	.547	1.049	1.115	1.186
	<u>Established Patient Office Visits</u>				<u>Radiology Procedures</u>			
General Practitioner	.617	1.024	1.088	1.216	.711	1.008	1.048	1.156
General Surgeon	.649	1.037	1.102	1.240	.685	1.015	1.079	1.199
Internist	.658	1.023	1.094	1.229	.646	1.037	1.067	1.215
	<u>Hospital Visits</u>				<u>Pathology Procedures</u>			
General Practitioner	.656	1.021	1.090	1.238	.532	1.030	1.081	1.203
General Surgeon	.669	1.019	1.058	1.172	.514	1.029	1.123	1.226
Internist	.678	1.013	1.090	1.186	.562	1.032	1.087	1.205
	<u>Other Procedures</u>				<u>All Procedures</u>			
General Practitioner	.649	1.046	1.111	1.197	.622	1.026	1.088	1.211
General Surgeon	.700	1.050	1.126	1.174	.657	1.030	1.091	1.207
Internist	.718	1.033	1.078	1.142	.662	1.008	1.091	1.198

TABLE 17

Medicare Reasonable Charges per RVS Unit, by Specialty and
Type of Procedure

	<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>			<u>Mean Charge</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
	<u>New Patient Office Visits</u>							
General Practitioner	.574	.976	.979	1.047	.530	1.021	1.019	1.068
General Surgeon	.601	1.008	1.010	1.080	.643	.989	1.023	1.076
Internist	.577	1.007	1.029	1.106	.512	1.020	1.053	1.092
	<u>Surgical Procedures</u>							
	<u>Established Patient Office Visits</u>							
General Practitioner	.576	1.007	1.019	1.085	.666	1.002	1.017	1.065
General Surgeon	.599	1.007	1.023	1.075	.651	1.005	1.018	1.072
Internist	.597	1.012	1.037	1.107	.622	1.029	1.029	1.077
	<u>Radiology Procedures</u>							
	<u>Hospital Visits</u>							
General Practitioner	.602	.998	1.013	1.090	.499	1.018	.994	1.074
General Surgeon	.611	1.003	1.008	1.052	.479	1.004	1.071	1.111
Internist	.608	1.007	1.035	1.081	.522	1.023	1.029	1.077
	<u>Pathology Procedures</u>							
	<u>Other Procedures</u>							
General Practitioner	.491	1.031	1.041	1.147	.561	1.011	1.020	1.094
General Surgeon	.536	1.019	1.030	1.116	.591	1.007	1.024	1.078
Internist	.565	1.019	1.042	1.120	.588	1.136	1.037	1.099
	<u>All Procedures</u>							

TABLE 18

Medicaid Actual Charges per RVS Unit, by Specialty and
Type of Procedure

	<u>Mean Charge</u>		<u>Index (1972 = 1.000)</u>		<u>Mean Charge</u>		<u>Index (1972 = 1.000)</u>	
	1972	1973	1974	1975	1972	1973	1974	1975
<u>New Patient Office Visits</u>								
General Practitioner	.632	.989	1.052	1.119	.619	1.015	1.099	1.108
General Surgeon	.647	1.034	1.113	1.243	.758	1.015	1.099	1.108
Internist	.653	1.046	1.043	1.170	.523	.935	1.054	1.150
Obstetrician-Gynecologist	.561	1.025	1.046	1.127	.699	.860	1.111	1.239
Pediatrician	.555	1.004	1.101	1.162	-	.971	1.060	1.182
<u>Surgical Procedures</u>								
<u>Established Patient Office Visits</u>								
General Practitioner	.616	1.000	.959	1.205	.741	.961	1.059	1.179
General Surgeon	.654	1.034	1.101	1.289	.687	.965	1.071	1.266
Internist	.662	1.011	1.103	1.228	.682	.997	1.094	1.213
Obstetrician-Gynecologist	.671	.990	1.046	1.131	-	-	-	-
Pediatrician	.579	1.002	1.052	1.197	-	-	-	-
<u>Radiology Procedures</u>								
<u>Hospital Visits</u>								
General Practitioner	.663	.989	1.063	1.279	.528	1.019	.953	1.212
General Surgeon	.682	1.018	1.109	1.224	.505	1.099	1.230	1.303
Internist	.702	.966	1.043	1.121	.577	.995	.974	1.201
Obstetrician-Gynecologist	.460	1.080	1.146	1.454	.461	.978	1.087	1.282
Pediatrician	.582	1.014	1.067	1.222	.608	1.038	1.189	1.271
<u>Pathology Procedures</u>								

TABLE 19

Medicaid Reasonable Charges per RVS Unit, by Specialty and
Type of Procedure

	Mean Charge	Index (1972 = 1.000)			Mean Charge	Index (1972 = 1.000)		
	1972	1973	1974	1975	1972	1973	1974	1975
	<u>New Patient Office Visits</u>							
General Practitioner	.541	1.006	1.026	1.030	.515	1.014	1.045	1.035
General Surgeon	.545	1.044	1.086	1.095	.593	.992	1.013	1.024
Internist	.545	1.059	1.009	1.061	.468	.885	1.043	1.122
Obstetrician-Gynecologist	.509	1.024	1.020	1.045	.496	1.000	1.020	1.026
Pediatrician	.530	1.008	1.042	1.083	-	-	-	-
	<u>Surgical Procedures</u>							
	<u>Radiology Procedures</u>							
General Practitioner	.524	1.011	.908	1.044	.582	1.021	1.024	1.045
General Surgeon	.534	1.041	1.021	1.094	.569	.977	.977	1.000
Internist	.540	1.022	1.026	1.056	.579	1.017	1.028	1.028
Obstetrician-Gynecologist	.546	1.024	1.035	1.046	-	-	-	-
Pediatrician	.509	1.033	1.035	1.102	-	-	-	-
	<u>Pathology Procedures</u>							
	<u>Hospital Visits</u>							
General Practitioner	.536	1.015	.974	1.047	.408	1.025	.865	1.047
General Surgeon	.555	1.018	1.049	1.020	.414	1.036	1.043	1.053
Internist	.525	1.011	1.017	1.017	.423	1.014	.913	1.012
Obstetrician-Gynecologist	.434	1.097	1.122	1.219	.341	.979	1.041	1.100
Pediatrician	.486	1.006	1.025	1.080	.478	1.029	1.052	1.073

First, price changes were more uniform across types of procedures. During the two price control years, changes in fees for office and hospital visits were comparable to those for surgery, pathology, and so on. The large differences among procedures observed in the price indices constructed with current service weights did not appear. Price changes for virtually all procedures were also below those permitted by the Economic Stabilization Program. The main exception was in the "other procedures" category where the price indices for all three specialties rose faster than permitted by controls.

In 1974, the price indices for all types of procedures for all specialties grew faster than controls permitted. This pattern was observed in the discussion of the 1972 service weight indices and probably reflects both growing disenchantment with controls and those claims in the sample that represent services provided after controls. By 1975, prices per RVS unit had risen on average by 20 percent. According to this measure, prices had increased by slightly more than 20 percent for office visits for established patients and slightly less than 20 percent for surgery and "other procedures." There were only minor differences among specialties in price changes per RVS unit.

Changes in Medicare reasonable charges per RVS unit were also very small in comparison with the conventional current service weight indices. There were virtually no changes in reasonable charges per RVS unit between 1972 and 1973. Increases for all office or hospital visit indices were less than 1.2 percent. Fees (per RVS unit) for "other procedures" increased by 3.1 percent for general practitioners and 1.9 percent for general surgeons and internists. Fee increases for pathology and surgical services for general practitioners and internists were roughly 2 percent. In 1974, somewhat larger increases occurred but the end result was that, with one exception, fee increases were still well

below ESP guidelines. Increases in reasonable charges per RVS unit in 1975 were again quite moderate in comparison with the current service weight index. The reasonable charge index increased to 1.094 for general practitioners, 1.078 for general surgeons, and 1.099 for internists, roughly half the increase observed for the comparable current service weight indices. Increases in fees were also fairly comparable across types of procedures, with surgery and radiology having below-average rates of increase and the "other procedures" indices increasing somewhat faster.

b. Medicaid. Increases in actual charges per RVS unit between 1972 and 1973 were even more moderate in Medicaid than in Medicare. The only exception in 1973 was an increase in the fee index of general surgeons to 1.037. Increases in Medicaid charges per RVS unit were more comparable to Medicare in 1974 and 1975. By 1975, the increase in the actual charge per RVS unit had risen to 1.204 for general practitioners, 1.278 for general surgeons, 1.186 for internists, 1.123 for obstetrician-gynecologists, and 1.189 for pediatricians. Unlike Medicare, there was considerable variation among specialties in changes in procedure-specific indices.

Medicaid reasonable charges per RVS unit are a better indicator of the contribution of price changes to program expenditures. Once again, fee increases were frozen in Medicaid for the entire period, with the exception of a 2.5 percent increase across the board in the latter part of 1972. The post-1973 changes are therefore attributable solely to shifts in physicians' participation in Medicaid. The increases in average Medicaid reasonable charges per RVS unit in 1973 tended to reflect the allowed fee increase. Somewhat surprisingly, average reimbursements increased by less than 2.5 percent for general practitioners and pediatricians and did not increase at all for obstetrician-gynecologists. In 1974, average reimbursement declined for all

specialties except general surgeons and pediatricians. However, in 1975, mean reimbursements jumped considerably. The reasonable charge per RVS increase for all procedures in 1975 was 1.044 for general practitioners, 1.081 for general surgeons, 1.045 for internists, 1.037 for obstetrician-gynecologists, and 1.079 for pediatricians. Increases in average Medicaid reimbursements for almost all office visits, pathology, and "other procedures" exceeded the 2.5 percent adjustment to the profiles. The extent of the fee increases by 1975 and the mixed pattern (among specialties) of changes in fees in 1973 and 1974 reflect in large part a change in both the number of physicians participating and the quantity and types of services those physicians provided to Medicaid patients.

2. Service Intensity

a. Medicare. The tables presented and described in the previous section demonstrate that approximately half of the increase in Medicare reasonable charges can be explained by price increases. For office visits, hospital visits, and "other procedures," changes in prices per RVS unit accounted for roughly 30 percent of the increases in price indices constructed with current service weights. Tables 20 and 21 present measures of service intensity. These reflect changes in the level of complexity of services either rendered or billed for. That is, increases in the proportion of visits that are billed as complex or intermediate relative to those billed as simple or brief will cause the service intensity index to increase.

The results demonstrate that the increases in the price index constructed with current service weights were very strongly affected by increases in service intensity. The service intensity increases occurred in the three office visit categories and in the "other procedures" category. The latter is dominated by home visits, nursing home visits, and consultations, which all allow for billing at alternative levels of complexity. There are very few

possibilities in the surgery, radiology, and pathology categories for increasing service intensity (RVS units per service). Additional tests or surgical procedures would appear as increased numbers of services. Increases in service intensity for established patient office visits were from 2 to 3 percent per year for general practitioners and general surgeons. The service intensity measure for internists increased to 1.025 in 1973, 1.036 in 1974, and 1.045 in 1975. Similar increases were observed for hospital visits. The service intensity measure had increased by 1975 to 1.088 for general practitioners, 1.140 for general surgeons, and 1.057 for internists. The index for "other procedures" increased by 4 to 6 percent in 1973, and by slightly less in 1974. It then rose dramatically in 1975 to 1.301 for general practitioners, 1.334 for general surgeons, and 1.183 for internists.

The results indicate a strong general trend toward billing for more complex procedures. The increase in service intensity does not appear to be related to price controls; it could be associated with increasing concern over malpractice claims, changes in medical education, or other factors affecting medical practice. The index rose consistently throughout the period, with the greatest increase occurring in the year after controls. All specialties participated in the service intensity increase. Service intensity increases were particularly large in several procedures performed by general practitioners and general surgeons. Internists were well below the other specialties in changing service complexity.

b. Medicaid. Service intensity increases in Medicaid were somewhat greater than for Medicare, perhaps reflecting the severe controls on Medicaid fees dating back to 1968. Physicians participating in the program apparently believed that the only way to obtain fee increases was to change definitions of

services. The results suggest that the system of procedure coding terminology was used as a method of increasing fees.

For both office visit categories and for hospital visits, the service intensity measure increased throughout the four-year period. For established patient office visits, the service intensity measure had increased by 1975 to 1.091 for general practitioners, 1.108 for general surgeons, 1.046 for internists, 1.233 for OB-GYNs, and 1.075 for pediatricians. Unlike Medicare, there were no increases in the service intensity measure for "other procedures." This reflects differences between the two categories in the composition of that category. In Medicare, it is dominated by services such as nursing home visits, home visits, and consultations. In Medicaid, immunizations and injections dominate the category; those services permit many fewer opportunities for manipulations of terminology.

TABLE 20

Changes in Medicare Service Intensity

	<u>Index (1972 = 1.000)</u>				<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1972</u>	<u>1973</u>	<u>1974</u> <u>1975</u>
	<u>New Patient Office Visits</u>				<u>Surgical Procedures</u>		
General Practitioner	30.434	1.048	1.058	1.109	.628	.997	1.008 .968
General Surgeon	29.310	1.061	1.053	1.074	3.748	1.098	1.018 1.008
Internist	53.584	1.009	.970	.992	.600	1.000	1.000 1.000
	<u>Established Patient Office Visits</u>				<u>Radiology Procedures</u>		
General Practitioner	13.697	1.031	1.042	1.079	5.263	1.007	1.006 1.010
General Surgeon	14.340	1.020	1.063	1.082	6.000	1.000	1.000 1.000
Internist	17.197	1.025	1.036	1.045	6.000	1.000	1.000 1.000
	<u>Hospital Visits</u>				<u>Pathology Procedures</u>		
General Practitioner	18.437	1.048	1.049	1.088	14.534	1.001	.996 1.005
General Surgeon	18.276	.994	1.091	1.140	14.951	1.007	1.004 1.005
Internist	22.234	1.016	1.025	1.057	16.054	.995	.989 .986
	<u>Other Procedures</u>				<u>All Procedures</u>		
General Practitioner	11.660	1.041	1.044	1.301	-	1.030	1.040 1.093
General Surgeon	20.607	1.061	1.108	1.334	-	1.051	1.055 1.096
Internist	22,769	1.043	1.064	1.183	-	.997	1.029 1.054

Changes in Medicaid Service Intensity

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IV. CHANGES IN THE NUMBER OF SERVICES, 1972-1975

Information on the number of services delivered by the sample physicians is provided in tables 22 through 29 for both programs, for all specialties, and for several types of procedures. The Medicare services indices suggest substantial changes in service delivery patterns in response to price controls imposed under the ESP. Changes in services during 1972 and 1973 reflect, to a significant extent, the impact of price controls. Changes in services during 1973 and 1974 are perhaps of greater interest because they represent adjustments to a new equilibrium position. Physicians may not have been immediately aware of declines in real income in the first year of controls. It is more likely that the effect of controls on real income positions became apparent after the initial period and that physicians attempted compensatory increases in service provision at that time. Changes in services from 1974 to 1975 represent physician behavior in the year after controls were removed, when both charges and reimbursements were permitted to increase considerably.

The model developed by Hadley and Lee suggests that physicians will induce demand in response to threats to their target incomes, either through declines in patient-physician ratios or through controls on prices.⁶ The extent of demand creation depends both on patients' time prices and money prices, exogenous factors affecting patient utilization decisions, and on the relationship between fees and the costs of providing different types of services. These considerations also affect the types of services that are induced.

The model, however, yields ambiguous predictions for Medicare patients. On the one hand, the model indicates that physician service increases would be greater for nonassigned claims because fees for such claims are generally higher and are thus greater relative to costs. On the other hand, patient cost-sharing

TABLE 22

Number of Medicare Services Delivered by
General Practitioners

	<u>Level</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	2,421	1.017	1.172	1.171
Office Visits--				
Established Patients	83,172	1.096	1.236	1.201
Hospital Visits	36,825	1.108	1.258	1.120
Surgical Procedures	4,384	.972	1.140	1.161
Arthrocentesis	805	.995	1.301	1.272
Proctosigmoidoscopy	294	1.153	1.161	1.302
Radiology	2,762	1.119	1.215	1.101
Pathology	20,895	1.074	1.226	1.242
Other Medical Procedures	42,364	1.100	1.008	.755
Home Visits	5,352	.995	.978	.868
Nursing Home Visits	10,251	1.458	.914	.939
Consultations	--	--	--	--
Injections	17,964	1.006	1.129	.616
Electrocardiograms	2,853	1.130	1.269	1.231
All Procedures	192,823	1.094	1.186	1.093

TABLE 23
 Number of Medicare Services Delivered by
 General Surgeons

	<u>Level</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	1,043	1.221	1.365	1.383
Office Visits--				
Established Patients	14,390	1.142	1.344	1.413
Hospital Visits	9,792	1.209	1.236	1.221
Surgical Procedures	5,430	.995	1.129	1.181
Arthrocentesis	195	1.368	1.774	1.777
Proctosigmoidoscopy	548	.995	1.064	1.151
Radiology	395	1.198	1.408	1.312
Pathology	2,220	1.096	1.056	1.292
Other Medical Procedures	6,987	.956	.988	.849
Home Visits	502	.961	.806	.666
Nursing Home Visits	801	1.130	1.140	1.343
Consultations	1,088	1.096	1.312	1.393
Injections	2,163	1.017	1.064	.666
Electrocardiograms	286	1.390	1.333	1.464
All Procedures	40,257	1.109	1.214	1.230

TABLE 24
Number of Medicare Services Delivered by
Internists

	<u>Level</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	2,196	1.096	1.172	.999
Office Visits--				
Established Patients	48,420	1.142	1.333	1.413
Hospital Visits	50,070	1.085	1.258	1.292
Surgical Procedures	1,791	.949	1.161	1.231
Arthrocentesis	458	.961	1.075	1.221
Proctosigmoidoscopy	354	.983	1.376	1.514
Radiology	2,013	1.074	1.129	1.201
Pathology	18,242	1.051	1.193	1.292
Other Medical Procedures	28,294	.870	.903	.828
Home Visits	2,625	.961	.968	.929
Nursing Home Visits	5,582	1.142	1.226	1.252
Consultations	1,641	1.119	1.312	1.322
Injections	6,760	.961	1.021	.626
Electrocardiograms	6,224	1.176	1.312	1.474
All Procedures	151,026	1.087	1.246	1.277

is higher for nonassigned claims because the physician may collect the difference between actual and reasonable charges. Offsetting this, however, is the fact that nonassigned claims tend to be smaller in dollar amount, and patients who are billed directly tend to have higher incomes. Individuals who are billed directly may also be more likely to have supplementary insurance, which could result in lower cost sharing on nonassigned than on assigned claims. Only through empirical analysis can the dominant effects be determined.

Unfortunately, the Medicaid experience is also difficult to interpret. The analysis presented above suggests that services will increase in the Medicaid program because controls on fees lead to demand creation, and expansion of demand should be more feasible when both time and money prices are low. Thus, controls on reimbursements from Medicare and other patients should have a spillover effect on Medicaid patients. As noted earlier, however, at roughly the same time the Economic Stabilization Program was introduced, other constraints were placed on the Medicaid program. First, in October 1971, California implemented a prior authorization program which mandated that physicians receive authorization for all nonemergency hospital admissions and all physician services for each patient beyond the first two visits each month. Second, in January 1972, the state imposed copayments for physician services on a significant share of the Medicaid population. Finally, strict controls on physicians' fees were continued. Reimbursement levels were frozen from 1968 through 1975 with the exception of a 2.5 percent increase in late 1972. Thus, even with Medicare reimbursement controlled, the ratio of Medicaid reimbursements to costs may have been too low to make demand creation attractive.

A. Medicare

The Medicare results suggest that physicians responded to controls on reimbursements by expanding their service volumes or by shifting from private to Medicare patients. For each of the three specialties, the total volume of services rose by roughly 10 percent in the first year and by slightly more than 10 percent in the second year of controls. In 1975, when controls were removed, service volume rose only slightly for general surgeons and internists, and fell markedly for general practitioners.

Increases in office visits and hospital visits generally contributed the most to the number of services indices. Both the initial absolute levels and the rates of increase were important for both procedure types. Radiology and pathology also increased dramatically. As noted earlier, however, radiology and pathology indices are difficult to interpret. Many radiology and pathology services are performed outside the physician's office. The physician can choose to have the laboratory, clinic, outpatient department, etc., performing the service bill the program, or the individual or firm can submit the bill to the physician who then submits a claim for the service after adding a charge for collection and handling. As a result, increases in the pathology or radiology indices can understate the actual increase if physicians perform a smaller proportion of those services in their own offices or if they change the billing procedure to permit the radiologist or pathologist to bill for the service directly. Likewise, the pathology or radiology indices can overstate actual increases if physicians choose to perform more procedures in-house or choose to bill directly for services performed outside their offices.

New patient office visits also fluctuated in an unusual manner over the period. For general surgeons and internists, new patient office visits increased markedly in the control years and then either leveled off or fell in

1975. For general practitioners, they increased in 1974 and leveled off in 1975. It is difficult to believe that patient-initiated visits increased in response to price controls. It is more probable that physicians increasingly used these procedure codes for new episodes of illness rather than strictly for new patients. New patient fees are higher than established patient fees; however, new patient office visits are very small relative to established patient visits in absolute numbers, so this is not a widespread behavioral response.

The "all procedures" service index for general practitioners rose to 1.094 in 1973, 1.186 in 1974, and fell to 1.093 in 1975. Because of their absolute numbers, the most important service provision increases were for established patient office visits, hospital visits, and lab tests. The office visits for established patients index increased to 1.096 in 1973 and to 1.236 in 1974, and then fell to 1.201 in 1975. Hospital visits exhibited a similar pattern, with very large increases in 1973 and 1974 and a sharp decline in 1975. The pathology index rose to 1.074 in 1973, 1.226 in 1974, and 1.242 in 1975. Electrocardiograms followed the same pattern, rising sharply in the control years and declining slightly in 1975. Surgical procedures performed by general practitioners fell slightly in 1973, but the index then rose to 1.14 in 1974 and 1.161 in 1975.

The "all procedures" index for general surgeons increased to 1.109 in 1973, 1.214 in 1974, and 1.230 in 1975. The surgical procedures index, which reflects changes in the most important source of income for general surgeons, was basically unchanged in 1973, then increased to 1.129 in 1974 and to 1.181 in 1975. Most other services provided by general surgeons increased faster than surgery. The primary sources of service increases in the control years were office visits and hospital visits. The office visits for established patients index

increased to 1.142 in 1972, 1.344 in 1973, and to 1.413 in 1975. Hospital visits increased by approximately 21 percent in 1973 and by a small percentage thereafter. Electrocardiograms and radiology both increased dramatically in 1973. Radiology procedures increased again in 1974 and then fell in 1975. Pathology procedures rose by 9.6 percent in 1973, fell slightly in 1974, and then rose precipitously in 1975. The consultations index increased to 1.096 in 1973, 1.312 in 1974, and 1.393 in 1975.

The internists services index (all procedures) rose to 1.087 in 1973, 1.246 in 1974, and 1.277 in 1975. The most important increases during the price control years were in office visits and hospital visits. Office visits for established patients increased by 14.2 percent in 1973, 16.7 percent in 1974, and another 6 percent in 1975. Hospital visits increased by 8.5 percent in 1973, 15.9 percent in 1974, and 2.7 percent in 1975. Pathology, radiology, and electrocardiograms increased at significant rates throughout the period, suggesting that those increases were not related to controls. Nursing home visits and consultations followed the previously cited pattern, rising significantly during control years and leveling off in 1975.

B. Medicaid

As noted earlier, interpretation of Medicaid data is complicated by the introduction of an eligibility monitoring system, cost sharing, and prior authorization, by the continuation of a freeze on Medicaid fees, and by any spillover effects from controls on fees charged to other patients. The results are consistent with a hypothesis that the decline in eligibility and/or the nearly simultaneous introduction of cost sharing for a small percentage of eligibles and prior authorization affected either recipient demand for services or physicians' willingness to participate in the program. Service volumes declined

TABLE 25

Number of Medicaid (Nonaged) Services Delivered by
General Practitioners

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	16,313	.843	.875	.960
Office Visits--				
Established Patients	124,759	.958	1.073	1.015
Hospital Visits	12,664	.996	1.052	.960
Surgical Procedures	7,082	.766	.729	.837
Radiology	4,758	.894	.937	1.038
Pathology	30,058	.881	1.156	1.026
Other Medical Procedures	58,468	.883	.779	.821
Nursing Home Visits	4,960	1.124	.771	.848
Consultations	--	--	--	--
Immunizations	7,759	.703	.792	.837
Injections	34,894	.869	.740	.803
Electrocardiograms	1,222	.996	.979	1.183
All Procedures	254,102	.916	.986	.962

TABLE 26
Number of Medicaid (Nonaged) Services Delivered by
General Surgeons

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	3,176	.881	1.104	1.283
Office Visits--				
Established Patients	16,035	1.111	1.198	1.361
Hospital Visits	4,686	.881	.979	1.105
Surgical Procedures	4,515	.728	.885	.960
Radiology	563	1.316	1.135	1.484
Pathology	2,145	1.099	1.260	1.294
Other Medical Procedures	8,010	.793	.844	1.035
Nursing Home Visits	--	--	--	--
Consultations	1,022	.818	.979	1.105
Immunizations	--	--	--	--
Injections	3,700	.920	.990	1.250
Electrocardiograms	--	--	--	--
All Procedures	39,130	.958	1.057	1.208

TABLE 27

Number of Medicaid (Nonaged) Services Delivered by
Internists

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	2,456	.984	1.115	1.093
Office Visits--				
Established Patients	24,619	.984	.990	1.082
Hospital Visits	13,468	.779	.792	.848
Surgical Procedures	915	.728	.708	.736
Radiology	1,031	1.124	.990	1.105
Pathology	7,842	.894	1.083	.976
Other Medical Procedures	12,485	.959	.867	.868
Nursing Home Visits	1,769	1.022	.635	.770
Consultations	903	.792	.937	.960
Immunizations	--	--	--	--
Injections	4,552	1.137	1.021	.971
Electrocardiograms	1,898	1.035	.979	1.093
All Procedures	62,816	.924	.937	.970

TABLE 28

Number of Medicaid (Nonaged) Services Delivered by
Obstetrician-Gynecologists

	<u>Level</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	2,193	1.060	1.094	1.082
Office Visits--				
Established Patients	8,475	.934	1.125	1.348
Hospital Visits	611	.934	.833	1.138
Surgical Procedures	3,905	.933	.937	.993
Radiology	--	--	--	--
Pathology	4,418	1.137	1.521	1.640
Other Medical Procedures	2,485	.718	.751	.837
Nursing Home Visits	--	--	--	--
Consultations	--	--	--	--
Immunizations	--	--	--	--
Injections	1,519	.690	.802	.848
Electrocardiograms	--	--	--	--
All Procedures	22,102	.984	1.117	1.294

TABLE 29

Number of Medicaid (Nonaged) Services Delivered by
Pediatricians

	<u>Level</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	3,287	1.035	1.031	1.105
Office Visits--				
Established Patients	24,887	1.099	1.312	1.328
Hospital Visits	5,734	.881	1.104	1.049
Surgical Procedures	702	.856	.927	.982
Radiology	--	--	--	--
Pathology	6,608	1.328	1.583	1.162
Other Medical Procedures	15,022	1.028	1.112	1.228
Nursing Home Visits	--	--	--	--
Consultations	--	--	--	--
Immunizations	8,431	.945	.999	1.193
Injections	4,307	1.265	1.292	1.160
Electrocardiograms	185	.818	.865	.948
All Procedures	56,240	1.086	1.247	1.116

between 1972 and 1973 for all specialists other than pediatricians. General practitioners' participation in Medicaid seems to have been most severely affected, never again reaching the volume of services provided in 1972. Obstetrician-gynecologists, general surgeons, and pediatricians increased their service volumes considerably in 1974 and 1975, perhaps in response to the end of cost sharing or to compensate for the continued controls on Medicaid fees.

The "all procedures" index for general practitioners fell to .916 in 1973, and then increased to .986 in 1974 and .962 in 1975. The office visits by new patients index declined to .843 in 1973 and never returned to 1972 levels. General practitioners may have been the most seriously affected by eligibility reductions. The results also suggest that participating general practitioners were reluctant to accept new patients. Office visits by established patients fell to .958 in 1973, increased to 1.073 in 1974, and then declined again in 1975. Hospital visits and pathology exhibited similar patterns. The 1974 increase may reflect the end of the cost sharing required of Medicaid recipients. The apparent decline in Medicaid participation by general practitioners, including the drop in 1975, may be partially the result of the increase in malpractice premiums. General practitioners perform a wide variety of procedures, including a large amount of surgery and maternity care. Those who perform any surgery or maternity care have a higher risk of malpractice claims and face much higher insurance premiums. The large increases in malpractice premiums for surgery beginning in 1975 led many general practitioners to stop performing any surgery or maternity care, since a large volume of these procedures would have to be performed to cover the additional premium cost. This view is consistent with the data provided in table 26, which shows increases in both pathology and office visits by established patients relative to surgery.

General surgeons also appear to have reacted to the combination of eligibility controls, low fees, prior authorization, and, perhaps, the increase in malpractice premiums. New patient visits declined in 1973, perhaps reflecting eligibility reductions or cost sharing, but then rose dramatically in 1974 and 1975. Surgical procedures, by far the most important source of revenue for general surgeons, declined considerably in 1973 and then rose in 1974 and 1975, but never returned to 1972 levels. The surgery index fell to .728 in 1973, .885 in 1974, and .960 in 1975. In contrast, the number of established patient office visits and lab tests rose throughout the period, and became very substantial relative to surgical procedures. The number of hospital visits fell below 1972 levels in 1973 and 1974, but the ratio of hospital visits to surgical procedures increased. The increase in visits and tests relative to surgery may reflect "conservative" medicine in response to the threat of malpractice--physicians may have become more selective about cases to be treated surgically, performed more diagnostic procedures, or sought second opinions regarding surgical decisions. It may also reflect an increase in the practice of general medicine in a state with a very large per capita supply of surgeons. The net result was a decline in the "all procedures" index to .958 in 1973, and an increase to 1.057 in 1974 and 1.208 in 1975. Thus, by 1975, general surgeons appear to have significantly increased the volume of services provided to Medicaid patients, with the very important exception of a decline in surgical procedures.

Internists' services exhibited a pattern similar to, but less dramatic than, that of general practitioners. The "all procedures" index fell to .924 in 1973, then increased to .937 in 1974 and to .970 in 1975. In 1972, internists' participation in Medicaid was low relative to general practitioners'

participation and appears to have remained low during the next three years. Internists apparently increased their willingness to accept new patients, unless this rise reflects changes in billing procedures. Visits by established patients and electrocardiograms performed rose by roughly 10 percent in 1975. Otherwise, there were no dramatic service increases. Hospital visits declined dramatically, perhaps representing more frequent referrals of patients to hospitals or to other specialists. Although internists' charges are generally higher than those of other physicians, Medicaid fees in California do not recognize specialty differences. Internists appear to have responded to the controls on fees by limiting their participation, and by occasionally attempting to expand demand through more frequent return visits or pathology procedures.

OB-GYNs appear to have increased participation in Medicaid, most probably in response to the declining participation of general practitioners and the liberalization of abortion laws. They also appear to have increased their willingness to accept new patients over the period. There was no increase in surgical procedures, which consist primarily of maternity care and abortions. Thus, an increase in new patients would represent an increase in general medical care by OB-GYNs for female Medicaid recipients. While surgical procedures either declined or were constant over the period, established patient office visits and pathology increased significantly. The established patient office visits index fell to .934 in 1973, increased to 1.125 in 1974 and again to 1.348 in 1975. The pathology index increased to 1.137 in 1973, 1.521 in 1974, and 1.640 in 1975. The increases in both types of procedures are extraordinary in light of the small increases in new patient office visits and the absence of increases in surgery. The net effect on total volume was a slight decline in 1973 and increases in the index to 1.117 in 1974 and 1.294 in 1975.

Pediatricians also appear to have increased participation in Medicaid, again possibly in response to the declining participation of general practitioners. As shown in tables 4 and 10, pediatricians' charges during this period did not increase as fast as those of general practitioners. Thus, the ratio of billed to reasonable charges grew faster for general practitioners than for pediatricians; pediatricians thus may not have grown as dissatisfied with Medicaid fees. The "all procedures" index increased to 1.086 in 1973, to 1.247 in 1974, and declined in 1975 to 1.116. Pediatricians increased their rate of acceptance of new patients over the period, according to the increases in new patient office visits. Visits by established patients did not decline during the cost-sharing period and rose considerably in 1974 and 1975, relative to 1972. Lab tests increased at extremely high rates. The index rose to 1.328 in 1973 and to 1.583 in 1974. The pathology index fell to 1.162 in 1975. Immunizations and injections rose over the period. Injections increased substantially in 1973 and 1974, and immunizations in 1975. There is no obvious explanation for these changes.

V. CHANGES IN PHYSICIAN REVENUES

A. Summary

The Medicare results suggest very clearly that physicians were able to respond to price controls by increasing both the complexity of services and the volume of services provided. Tables 30 through 32 show the increases in physician revenues from the Medicare program. The data show that gross revenues for the 1972-1975 period rose by 30.3 percent for general practitioners, 38.9 percent for general surgeons, and 51.3 percent for internists. The increases in revenues were at least as great during price controls as in the year after their removal. These revenue estimates understate actual increases because the prices used to construct them are reasonable charges. On nonassigned claims, physicians usually collect more than the reasonable charge. In addition, there was some shift to nonassigned claims in Medicare.

The "all procedures" revenue index for general practitioners rose to 1.119 in 1973, 1.258 in 1974, and 1.303 in 1975. The same index for general surgeons increased to 1.101 in 1973, 1.273 in 1974, and 1.389 in 1975 and for internists, to 1.129 in 1973, 1.347 in 1974, and 1.513 in 1975. The most important difference among the years is in the means through which incomes were increased. In 1973 and 1974, price increases were negligible, and service intensity increases were roughly 3 to 4 percent per year. The main source of revenue increases was in the volume of services. In 1975, service intensity again increased by a small percentage, but prices (reasonable charges) increased substantially. Most procedures performed by the three specialties increased very little or not at all. However, price controls were removed in April 1974, and physicians' revenues increased from 1974 to 1975 largely because of increases in prices.

TABLE 30
Gross Revenues of Medicare
General Practitioners

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	38,804	1.051	1.226	1.383
Office Visits--				
Established Patients	650,213	1.142	1.312	1.413
Hospital Visits	396,008	1.164	1.344	1.332
Surgical Procedures	184,058	.949	1.140	1.181
Arthrocentesis	11,431	.995	1.301	1.343
Proctosigmoidscopy	5,451	1.164	1.204	1.443
Radiology	47,406	1.153	1.269	1.393
Pathology	86,951	1.153	1.279	1.554
Other Medical Procedures	337,968	1.146	1.112	1.047
Home Visits	72,460	1.040	1.011	.979
Nursing Home Visits	94,778	1.492	1.064	1.262
Injections	48,323	1.029	1.183	.646
Electrocardiograms	51,525	1.142	1.301	1.322
All Procedures	1,742,408	1.119	1.258	1.303

TABLE 31
Gross Revenues of Medicare
General Surgeons

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	17,499	1.311	1.441	1.605
Office Visits--				
Established Patients	122,317	1.176	1.462	1.655
Hospital Visits	106,571	1.209	1.355	1.464
Surgical Procedures	1,049,947	1.074	1.247	1.363
Arthrocentesis	3,397	1.277	1.860	1.928
Proctosigmoidoscopy	11,294	1.006	1.075	1.262
Radiology	7,317	1.255	1.516	1.575
Pathology	9,543	1.187	1.183	1.635
Other Medical Procedures	101,441	.715	1.032	1.231
Home Visits	6,788	1.029	.935	.797
Nursing Home Visits	8,415	1.153	1.150	1.544
Consultations	32,505	1.096	1.322	1.514
Injections	5,992	1.051	1.107	.676
Electrocardiograms	5,274	1.424	1.344	1.544
All Procedures	--	1.101	1.273	1.389

TABLE 32
Gross Revenues of Medicare
Internists

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits-- New Patients	66,600	1.119	1.172	1.110
Office Visits-- Established Patients	491,422	1.187	1.441	1.635
Hospital Visits	659,127	1.108	1.344	1.494
Surgical Procedures	49,425	1.006	1.344	1.645
Arthrocentesis	5,716	.960	1.075	1.242
Proctosigmoidoscopy	6,772	1.017	1.441	1.666
Radiology	33,012	1.176	1.236	1.343
Pathology	89,885	1.130	1.247	1.585
Other Medical Procedures	384,086	1.101	1.302	1.434
Home Visits	42,486	.983	1.000	1.040
Nursing Home Visits	55,498	1.255	1.387	1.635
Consultations	66,851	1.153	1.376	1.464
Injections	19,266	.949	1.043	.636
Electrocardiograms	111,161	1.198	1.355	1.585
All Procedures	1,773,577	1.129	1.347	1.513

Tables 33 through 37 show changes in Medicaid revenues for several types of procedures for five specialties. Physicians' revenues did not increase as rapidly in Medicaid as in Medicare. The combination of the decline in eligibility, the continued controls on Medicaid fees since 1968, and the imposition of cost sharing and prior authorization resulted in declines in revenue in 1973 for most specialties and slow rates of increase thereafter. The growth in revenues after 1973 was somewhat slower than the growth in services because of a shift to a less expensive procedure mix.

B. Medicare

General practitioners' revenues from Medicare actually increased faster during price control years than afterward. The "all procedures" revenue index rose to 1.119 in 1973, 1.258 in 1974, and 1.303 in 1975. The changes in the index in 1973 and 1974 were principally due to increases in services. However, in 1975, the "all procedures" service index declined considerably; thus, the growth in revenues resulted from an 11.1 percent increase in price per RVS unit and a 5.1 percent increase in service intensity.

Most individual procedure types followed a similar pattern. The revenue index for established patient office visits increased to 1.142 in 1973, 1.312 in 1974, and 1.413 in 1975. The increases in 1973 and 1974 resulted principally from changes in service volume and in 1975 from a large increase in prices per RVS unit. Revenues from hospital visits increased to 1.164 in 1973 and to 1.344 in 1974, but fell to 1.332 in 1975. The 1975 increase in price per RVS unit was not sufficient to compensate for the decline in service volume. The revenue index for pathology increased to 1.153 in 1973, 1.279 in 1974, and 1.554 in 1975; the large increase in 1975 reflected both service and price increases. Revenues from surgery rose much more slowly than for other procedures,

TABLE 33

Gross Revenues of Medicaid (Nonaged)
General Practitioners

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	217,388	.907	1.010	1.171
Office Visits--				
Established Patients	910,542	.996	1.031	1.171
Hospital Visits	152,493	.971	1.000	1.060
Surgical Procedures	440,621	.754	.740	.915
Radiology	68,941	.907	.979	1.116
Pathology	104,238	.869	1.198	1.116
Other Medical Procedures	304,655	.984	.967	.934
Nursing Home Visits	41,432	1.060	.802	.837
Consultations	--	--	--	--
Immunizations	31,889	.677	.948	.893
Injections	118,291	.869	.958	.870
Electrocardiograms	19,356	1.009	1.010	1.238
All Procedures	2,198,878	.927	.965	1.074

TABLE 34

Gross Revenues of Medicaid (Nonaged)
General Surgeons

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	46,661	1.047	1.354	1.618
Office Visits--				
Established Patients	129,482	1.175	1.333	1.674
Hospital Visits	51,444	.907	1.135	1.283
Surgical Procedures	731,610	.690	.865	.893
Radiology	8,886	1.277	1.146	1.529
Pathology	8,936	.958	1.271	1.372
Other Medical Procedures	81,515	.715	1.032	1.231
Nursing Home Visits	--	.856	.427	1.082
Consultations	27,340	.830	1.094	1.238
Immunizations	--	.626	.781	.770
Injections	12,913	.971	1.094	1.406
Electrocardiograms	2,068	1.328	1.250	1.328
All Procedures	1,058,534	.786	.973	1.076

TABLE 35
Gross Revenues of Medicaid (Nonaged)
Internists

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	53,834	.996	1.177	1.205
Office Visits--				
Established Patients	220,903	1.060	1.062	1.194
Hospital Visits	158,439	.805	.865	.960
Surgical Procedures	30,986	.703	.729	.658
Radiology	15,355	1.124	1.094	1.294
Pathology	31,438	.818	1.042	.937
Other Medical Procedures	139,765	.975	.963	1.063
Nursing Home Visits	16,305	.984	.687	1.105
Consultations	32,795	.805	1.010	1.026
Immunizations	1,422	.728	1.042	1.060
Injections	17,298	1.162	1.042	1.004
Electrocardiograms	30,425	1.047	1.010	1.116
All Procedures	650,710	.947	.985	1.121

TABLE 36

Gross Revenues of Medicaid (Nonaged)
Obstetrician-Gynecologists

	<u>Level</u>	<u>Index (1972 = 1.000)</u>		
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	45,328	1.111	1.208	1.283
Office Visits--				
Established Patients	79,819	1.073	1.333	1.707
Hospital Visits	9,854	.894	.885	1.372
Surgical Procedures	534,094	.958	1.000	1.060
Radiology	--	--	--	--
Pathology	17,127	1.162	1.614	1.685
Other Medical Procedures	13,963	.751	1.035	1.288
Nursing Home Visits	--	--	--	--
Consultations	4,314	.984	1.010	.971
Immunizations	--	--	--	--
Injections	5,625	.690	.833	.893
Electrocardiograms	--	--	--	--
All Procedures	720,439	.978	1.061	1.147

TABLE 37

Gross Revenues of Medicaid (Nonaged)
Pediatricians

	<u>Level</u> <u>1972</u>	<u>Index (1972 = 1.000)</u>		
		<u>1973</u>	<u>1974</u>	<u>1975</u>
Office Visits--				
New Patients	52,023	1.073	1.156	1.383
Office Visits--				
Established Patients	209,601	1.175	1.448	1.618
Hospital Visits	78,795	.945	1.198	1.216
Surgical Procedures	16,691	.715	.969	1.038
Radiology	--	--	--	--
Pathology	22,309	1.367	1.719	1.863
Other Medical Procedures	86,567	.879	1.023	1.216
Nursing Home Visits	--	--	--	--
Consultations	--	--	--	--
Immunizations	36,591	.933	1.021	1.272
Injections	16,151	1.226	1.271	1.160
Electrocardiograms	2,799	.856	.896	.982
All Procedures	469,177	1.064	1.287	1.440

primarily because increases in surgery rates were very moderate. Revenues from "other procedures" decreased each year because of the decline throughout the period in the number of home visits and nursing home visits and the decline in injections in 1975.

General surgeons' revenues increased by 10.1 percent in 1973, 15.6 percent in 1974, and 9.1 percent in 1975. The revenue increases in 1973 were entirely attributable to increases in services--in visits and diagnostic procedures, but not in surgery. Revenue increases in 1974 were primarily due to another rise in service volume, but fee increases also contributed. In 1975, reimbursement rate increases accounted for virtually all the change in surgeons' incomes. Surgeons' incomes rose mainly as a result of large increases in revenues from office visits and pathology. In 1973 and 1974, increases in fees and service intensity combined were 2.7 percent and 5.9 percent respectively. Thus, increases in numbers of visits were the main contributor to revenue increases of 17.6 percent and 24.3 percent in those two years. In 1975, the number of visits increased by only 5.1 percent, while revenues rose by 13.2 percent because of fee and service intensity increases. Office visits for new patients and hospital visits displayed very similar patterns. Somewhat surprisingly, revenue increases from surgery were below the average for all procedures. The surgery revenue index rose to 1.074 in 1973, 1.247 in 1974, and 1.363 in 1975, largely reflecting a relatively moderate growth in the number of surgical procedures. Surgeons also experienced rather large increases in revenues from pathology, radiology, consultations, and electrocardiograms throughout the period. The relative contributions of changes in services and reimbursement rates were different in some cases--the principal deviation was a large increase in pathology procedures in 1975 following a slight decline in 1974.

Internists' revenues increased by 12.9 percent in 1973, 19.3 percent in 1974, and 12.3 percent in 1975. Increases in services of 8.7 percent and 14.6 percent again accounted for most of the income growth in 1973 and 1974. In 1975, services grew by only 2.5 percent; fee and service intensity increases accounted for most of the growth in internists' incomes in the last year. Established patient office visits, pathology, nursing home visits, and electrocardiograms were the most important contributors to income growth for internists. The established patient office visit index increased to 1.187 in 1973, 1.441 in 1974, and 1.635 in 1975. The pathology revenue index grew to 1.130 in 1973, 1.247 in 1974, and 1.585 in 1975. The number of visits and lab tests increased in each year; fee increases for both procedure types also contributed to the large jump in revenues in 1975. The nursing home visit index rose to 1.255 in 1973, 1.387 in 1974, and 1.635 in 1975. Increases in nursing home visits were substantial, particularly in 1973 and 1974, but much of the revenue growth stemmed from increases in fees and service complexity. Revenues from electrocardiograms grew steadily throughout the period. The number of electrocardiograms increased by 17.6 percent in 1973, 11.6 percent in 1974, and 12.3 percent in 1975, but not as rapidly in any year as the growth in revenues from that procedure.

C. Medicaid

The "all procedures" revenue index for general practitioners fell to .927 in 1973, then increased to .965 in 1974 and 1.074 in 1975. The pattern of change in revenues for 1973 and 1974 follows closely that for services. In 1975, revenues increased while services fell slightly, on account of the large increase in reasonable charges observed earlier. There appears to have been a shift in participation rates of the sample physicians. Physicians with low

reasonable charge screens appear to have reduced the number of services provided to Medicaid patients, whereas physicians with high screens seem to have increased service delivery. The net result was little change in services, but a large increase in average reimbursement rates (19.1 percent between 1974 and 1975) resulting from changes in fees and service complexity. The shift in physician participation rates led to an 11.2 percent increase in average general practitioner revenues between 1974 and 1975. Revenues from virtually all services fell in 1973. Revenues from office visits by established patients were roughly constant in 1973, but incomes from new patient office visits, radiology, and pathology fell considerably. In 1974, following the end of cost sharing, revenues from both new patient and established patient office visits increased. Incomes from radiology and pathology procedures also increased significantly. These increases were largely due to growth in service provision. Medicaid fee controls were still in effect and the net result was very little change in average fees through 1974. In 1975, revenues increased for new patient and established patient office visits, hospital visits, and radiology. In 1975, however, revenue increases were principally due to a rise in average reimbursement rates.

The revenue index for general surgeons fell to .786 in 1973, and then increased to .973 in 1974 and to 1.076 in 1975. The decline in 1973 resulted almost entirely from a 27.2 percent decline in the number of surgical procedures and a 31 percent drop in revenues from surgery. Revenues from pathology and hospital visits fell by smaller percentages, and revenues from office visits and radiology actually rose. Surgeons' revenues from Medicaid grew by 23.8 percent in 1974 primarily because of increases in services--new patient and established patient office visits, hospital visits, surgery, and pathology.

Reimbursement rates and service complexity both increased for most procedures. In 1975, general surgeons' revenues from Medicaid increased by another 10.6 percent. Revenues rose by 19.5 percent from new patient office visits, by 25.6 percent from established patient office visits, by 13 percent from hospital visits, and by 33.4 percent from radiology. Growth in service volume was responsible for most of these increases; price increases including changes in service complexity averaged only 4.2 percent between 1974 and 1975.

The internists' Medicaid revenue index fell to .947 in 1973, increased slightly in 1974 to .985, and then jumped to 1.121 in 1975. Internists' revenues apparently fell in 1973 not because of a decline in visits but because of a decrease in services (surgery, hospital visits, and lab tests) per visit. Revenues from established patient office visits increased by 6 percent, while revenues from hospital visits, surgery, and pathology fell by 19.5 percent, 29.7 percent, and 18.2 percent respectively. In 1974, revenues from established patient office visits did not change, but total revenues grew because of increases in incomes from new patient office visits and pathology. Revenue growth in those procedures resulted primarily from increases in services. Increases in reimbursement rates and service complexity averaged less than 2 percent. The 13.8 percent increase in internists' Medicaid revenues in 1975 reflected increases in incomes from office visits for established patients and from hospital visits. Reimbursement rates (including service intensity changes) for both types of procedures increased at 4 percent and 3.6 percent respectively. The number of established patient office visits and hospital visits increased by 9.3 percent and 7.1 percent respectively.

Medicaid revenues received by obstetrician-gynecologists fell by 2.2 percent in 1973, but then increased by 8.5 percent in 1974 and by 8.1 percent in

1975. Revenue increases for OB-GYNs in 1974 and 1975 were significantly less than the increases in services discussed earlier. The number of surgical procedures fell during the 1972-1975 period, while services such as office visits by established patients and pathology grew by 34.8 percent and 64 percent respectively. Thus, the average price per procedure fell because of the shift in relative proportions of simple and expensive procedures. Because fees, when averaged across all procedures, decreased over time, revenues grew at a slower rate than services. OB-GYN revenues increased most dramatically for new patient and established patient office visits and pathology. Growth in revenues for new patient office visits resulted both from increases in new patient office visits and from substantial year-to-year changes in service complexity. Changes in revenues for established patient office visits exhibited similar patterns. The number of visits increased by 20.4 percent in 1974 and by another 19.8 percent in 1975. The service intensity index increased by 9 percent in 1974 and by 7.1 percent in 1975. The pathology revenue index grew to 1.162 in 1973, 1.614 in 1974, and 1.685 in 1975, rather closely reflecting the growth in laboratory procedures. The most striking figures for OB-GYNs were the decline in surgery revenues for 1973 and the very moderate increases in 1974 and 1975.

Unlike other specialties, pediatricians' incomes from Medicaid increased in 1973 and in each year thereafter. The Medicaid revenue index for pediatricians grew to 1.064 in 1973, 1.287 in 1974, and 1.440 in 1975. Pediatricians may have benefited from reduced Medicaid participation of general practitioners. As noted previously, visits to pediatricians by both new and established patients never declined in 1973. As a result, revenues from new patient office visits, established patient office visits, and pathology increased in 1973 by 7.3 percent, 17.5 percent, and 36.7 percent respectively. In 1974, revenues

increased for all procedure types, but most dramatically for established patient office visits (23.2 percent), hospital visits (26.8 percent), and pathology (25.7 percent). These increases reflected the large growth in volume of these procedures. In 1975, pediatricians' revenues grew again by 11.9 percent. Pediatrician services did not increase as they had in 1974, and pathology procedures fell substantially. Growth in revenues in 1975 was primarily due to increases in average prices per RVS unit and service intensity, particularly in office and hospital visits.

VI. CONCLUSIONS AND POLICY IMPLICATIONS

This paper's principal conclusion is that price controls were successful in controlling the rise in physician fees. They were not, however, successful in constraining the rate of increase of Medicare expenditures on physician services. Although the Economic Stabilization Program was not designed to control increases in physicians' incomes, the experience under that program provides useful information on the effectiveness of fee controls as a future policy for limiting expenditures on physicians' services.

An examination of base year weight fee indices (a constant mix of services) or price per RVS unit indices indicates that Medicare fees were successfully constrained. However, an examination of current year weight fee indices clearly shows that both actual and reasonable charge screens increased significantly. These increases were partially attributable to small increases in service intensity as physicians performed and billed for a more complex mix of procedures. The most important cause of the increase in physician expenditures during this period, however, was the substantial growth in the number of physicians' services. In both 1973 and 1974, services provided by physicians increased by roughly 10 percent per year. As a result, physicians' revenues also increased, and somewhat more rapidly. When price controls were removed in 1975, the volume of services either declined or increased only slightly; revenues increased in 1975 because reasonable charge screens were lifted.

The increase in Medicare services observed in 1974 and 1975 may have been partially attributable to factors other than price controls that were present in the physician care market at that time. Further evidence should be forthcoming from Hadley and Lee's estimation of a formal econometric model of the system. However, we suspect that no other factor could have had such major

effects on the market as the imposition and subsequent removal of controls. Thus, our tentative conclusion is that most of the observed change in services and incomes represents a behavioral response to price controls.

We are also uncertain whether our findings are indicative of a general increase in physicians' services and incomes during this period or whether they reflect only an expansion of services to Medicare patients. Medicare beneficiaries are better insured for office visits and lab tests, the most important sources of service increases, than are privately insured individuals. We did observe a partial or relative substitution of Medicare patients for private patients during price controls. The slowdown or decline in Medicare services in 1975 may reflect a partial reversal of this pattern after controls were removed. It can be argued that induced demand is more likely where patients face limited or no cost sharing. If this is true, increased cost sharing could have more successfully controlled physicians' incomes.

Analysis of the Medicaid program revealed that a variety of controls on eligibility, physician fees, and utilization (cost sharing and prior authorization) successfully limited the program's expenditures on physicians' services. The analysis undertaken in this research could not distinguish the effects of the different Medicaid policies, nor could it be determined whether those policies imposed severe hardship on Medicaid patients. Evidence indicates, however, that by 1975, physicians most constrained by fee controls had significantly reduced their participation in Medicaid. This suggests that if fees are severely limited for a lengthy period, the response by physicians is reduced participation, not demand expansion. Reduced participation occurs, at least, when physicians can substitute other patients for Medicaid recipients. It would obviously be less true if fees for all services were controlled. On the

other hand, large increases in visits and tests per surgical procedure for general surgeons and OB-GYNs gave support to the demand expansion hypothesis. As noted earlier, a portion of these observed increases are probably attributable to the growing concern over malpractice. However, the analysis of Hadley and Lee suggests that while there are service volume increases associated with malpractice, the constraints on fees have had a considerable impact on numbers of services delivered as well.⁷

This paper strongly suggests that price controls by themselves will not effectively limit undesirable growth in expenditures on physicians' services, at least over a short time period. This does not imply that fee controls should not be a basic element in a national cost containment strategy. It should be noted that important distinctions between short-term and long-term effects of controls may exist. In the relatively short term, many inputs of a physician's practice, particularly a solo practitioner's, are fixed. The period of time necessary for adjustments is unknown and may vary considerably among physicians. One might speculate, however, that a physician with a small office with one or two aides may be reluctant to make major changes in wage structure, hours of employment, space, or facilities even over a one- or two-year period, particularly if controls are likely to be short-lived. If most inputs are essentially regarded as fixed, the marginal costs of additional visits or tests may be quite low (negligible if time spent per visit is reduced). As a result, the revenue at the margin from even controlled fees may considerably exceed the added costs of expanding the number of visits and diagnostic tests. If controls on rates of increase are permanent over a much longer period, physicians may adjust in very different ways. That is, physicians may accept some reductions in money incomes, perhaps even in real incomes, in exchange for a smaller

patient load and greater leisure. In addition, physicians have a limited ability to create demand. If fees were controlled for several years, it is doubtful that physicians could continue to maintain incomes through demand expansion. While the long-term consequences of fee controls may be considerably different than the short-term ones, it does not seem wise to base policy on such speculations. In the short term, there is a clear need to control the quantity of service as well as prices.

Formulation of effective controls on physicians' fees and volume of services requires substantial data-gathering and analysis efforts. This study demonstrates very clearly that price indices are highly sensitive to the number of procedures used in constructing them. Price indices using base year service weights are subject to major errors because physicians make substantial changes over time in the services they perform. Procedures change quite significantly in their relative importance within a specialty. Likewise, no one set of procedures is useful for developing indices for more than one specialty. The problem is particularly serious with surgery, laboratory, and radiology procedures. Physicians provide small quantities of a large number of different procedures in these categories. As a result, a large number of procedures must be used to calculate meaningful price indices. For the same reasons, it is critical that a large number of different procedures be used to analyze shifts in the volume of surgery, radiology, and pathology services. For example, we found in the course of the present study that analysis of 200 procedures was not adequate to accurately determine changes in surgery and radiology services and revenues. As a result, we used the entire universe of procedures.

While it is critical that government programs develop the capacity to monitor changes in physician behavior in response to policy initiatives, it is

also clear that the incentives in existing reimbursement systems could be improved. It is very important that policies be designed to reduce physicians' incentives to influence patient utilization decisions. Demand creation is attractive to physicians when fees exceed the incremental costs of service provision. If demand can in fact be "created," the additional services provided will be those that are relatively more profitable for physicians. It is not surprising, then, that physicians provide more diagnostic services such as laboratory tests, x-rays, and electrocardiograms when fees are controlled. The costs of additional testing are not high because of the small time input of physicians. In addition, costs of many diagnostic services have declined dramatically in recent years in response to technological innovations.⁸ Physicians' charges tend to exceed the marginal costs of providing these services, sometimes considerably. Thus, the incentive for demand creation is obvious. Evidence from this study suggests that office visits increase physicians' net incomes more than most other services, at least in the short run. Office visits for established patients tended to increase more than any other type of procedure during the price control years.

There are some policy alternatives that would help reduce demand creation incentives. Fee schedules could be structured so that fees for all procedures reflect the costs of services produced in a technically and economically efficient manner. The obvious drawback to this option is that the cost of producing individual services in physicians' offices is extremely difficult to calculate. It is an extremely complex task to determine the most efficient method of producing medical services. the "optimal" method of producing services in one practice setting may be completely infeasible in another setting. A fee structure based on costs in an economically efficient practice setting in one area

might have extremely inequitable results if applied elsewhere. The value of physicians' time is a cost of service provision, but this varies considerably among physicians.

Even without citing other difficulties, it is evident that precise determination of fee schedules is a very formidable task. Nevertheless, it is possible to achieve a much closer relationship between fees and marginal costs than now exists. Reducing fees for most diagnostic services relative to other services would be an excellent first step. Because of the difficulty of accurately establishing costs of a large number of procedures, such an effort can never hope to be completely successful. At most, establishing fees with greater attention to marginal costs can only improve incentives, not directly affect outcomes.

Utilization review, if appropriately applied, may be useful in limiting demand expansion in response to controls. In essence, utilization review involves comparing services against pre-established norms or standards of appropriateness. In the case of most ambulatory care, the most appropriate utilization review technique would be to examine on a post-treatment basis such variables as the ratio of certain diagnostic services to patient visits and of repeat to initial visits. When claims are made for services which exceed standards, physicians would be required to provide information justifying the large number of services rendered. Inability to satisfactorily provide evidence of the appropriateness of services would result in denial of payment for the services deemed excessive. Complex or expensive services such as major surgery or computed axial tomography (CT) scanning might be subject to prior authorization; payment would only be made if the service received approval.

Although utilization review has gained prominence as a mechanism for regulating the use of hospital inpatient care, there are several difficulties that have prevented its large-scale application to ambulatory care.

First, establishing rigorous standards for a wide variety of case types, when the appropriate care will vary with the patient's age, medical history, and several other factors, is an awesome task. In addition, it is difficult to find agreement among physicians on appropriate norms even for similar cases.

Second, a major problem in the implementation of utilization review as a mechanism for controlling health care costs is that the incentives of the reviewing organization, e.g., Professional Service Review Organizations (PSROs), are often different from those of the agency paying for services. The mandate of utilization review mechanisms has not been merely to reduce the amount of excessive or unnecessary services provided, but to increase the quality of care of individuals whose care is inadequate. In the process of developing norms of appropriate care, standards can easily be set at a level which, in a resource allocation sense, is either too high or too low. While standards or norms will be established by physicians, economic decisions, as well as medical ones, will have to be made. Separating the standards-setting function from the fiscally responsible government agency can result in excessively high standards of appropriateness.

Finally, the costs of monitoring utilization patterns in ambulatory care settings are likely to be high relative to the savings from claims denials or services deterred. In contrast to inpatient care, where the cost of a hospital stay is very high, ambulatory care typically consists of a large number of inexpensive discrete services. The resources required to make determinations of

appropriateness are likely to be substantial despite the small average size (in dollars) of the claim.

These considerations suggest that a utilization review system will only be cost-effective if it is (1) applied on a post-treatment review basis with monitoring of a carefully selected group of procedures or ratios and (2) applied on a prior authorization basis to a selected group of expensive procedures.

A more comprehensive approach to controlling the quantity of services would be tying fee increases to aggregate changes in physician incomes. Once a decision is reached on a target rate of increase in physician incomes for the coming year, fee increases would be established to provide for some share of the increase in incomes. The balance of the increase in physician incomes would be expected to come from increased service provision. If utilization increases exceed the anticipated rate, fees would be constrained even more in the next year. For example, the West German government entered into an arrangement in 1976 whereby fees would rise by approximately 2 percent in 1976 and 4 percent in 1977, assuming utilization increased by no more than 6 percent and 4 percent respectively. If utilization increased at faster rates, fees would be reduced so that the target rate of increase in ambulatory service expenditures would be no more than 8 percent.⁹ A comparable system has been formally adopted in Quebec. In the rest of Canada, fee increases are informally tied to desired changes in incomes, both absolute rates of change as well as equalization among specialties. Evidence is emerging that rates of change in physician expenditures are falling in Canada in response to this system. Canadian officials contend that the system gives the government effective control over the utilization-increasing behavior of physicians.¹⁰ Hadley has provided evidence that real incomes of physicians have fallen in Canada in response to both increases in the

supply of physicians and controls on increases in fees.¹¹ This is not to suggest that declines in physicians' real incomes are desirable, but rather that appropriate public policies can gain some measure of control over their rate of growth.

Linking fee increases to target expenditures has considerable promise as a method of controlling increases in physician expenditures. It has, however, many potential problems. The incentives of the individual physician are different from those of physicians in the aggregate. The individual physician has an incentive to provide a large number of reimbursable services because his income can exceed the target rate if his rate of increase in total billing exceeds the average rate of increase. Likewise, a physician who increases his provision of services by less than the average rate of increase will receive an income gain less than the target rate. This outcome would be desirable only if it forces physicians to establish formal procedures for monitoring the practice patterns of other physicians. Linking the reimbursement system to changes in income may create the incentives for PSROs to be effective. That is, the separation of the standards-setting and enforcement function from the fiscally responsible government agency will be much less of a problem because physicians themselves will have a greater stake in the outcome.

One problem with an indexing arrangement is the need for accurate and timely data on physician incomes. In a fixed-budget arrangement, the rate of increase depends primarily on the government's ability and willingness to spend, rather than physicians' target incomes. With a system tied to desired changes in incomes, relevant data must be made readily available to negotiators. This may be very difficult to accomplish, particularly in a system where many carriers are permitted to operate. Indexation would be most feasible under

national health insurance plans with a unified billing system. Such a system could only be implemented under the present fragmented third-party payment system if price controls such as those used during ESP were re-introduced and a substantial amount of information were gathered on a large sample of physicians.

NOTES

1. Jack Hadley and Robert Lee, "Physicians' Price and Output Decisions: Theory and Evidence," Working Paper 998-8 (Washington, D.C.: The Urban Institute, March 1978).
2. California Medical Association, Committee of Relative Value Studies, 1969 California Relative Value Studies (San Francisco, 1969).
3. See Medical Assistance Program Annual Report (Sacramento: State of California Center for Health Statistics, calendar years 1972, 1973, 1974, and 1975).
4. For a complete discussion of the sampling procedures, see William Scanlon and James Bluck, "A Descriptive Analysis of Physicians' Fees and Reimbursements under Medicare-Medicaid in California," Working Paper 998-1 (Washington, D.C.: The Urban Institute, August 1977).
5. James Bluck and Robert Lee, "Inter-Program Variations in Physician Billing Behavior," Working Paper 998-5 (Washington, D.C.: The Urban Institute, October 1977).
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7. Ibid.
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9. William Glaser, Paying the Doctor under National Health Insurance: Foreign Lessons for U.S. (New York: Columbia University, 1976).
10. Conversation with Robert A. Armstrong, director general of Canada's health insurance program.
11. Jack Hadley, "National Health Insurance and the Health Labor Force: Physicians," Working Paper 5057-7 (Washington, D.C.: The Urban Institute, August 1977).

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